

THE PRINCIPLES OF EXCHANGE

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PREFACE

For an undergraduate the theory of value is perhaps the most difficult and confusing part of the study of economic theory. Ordinary text books often fail to give him a thorough grounding in the principles and problems of exchange and distribution. For that he has to depend on class lectures and seminars in the subject. But outside the class room there still exists the necessity of a book that may not only elucidate the principles of value but help him to understand the various problems and perceive their inter-connections. As a teacher I have found it extremely helpful to put to students intelligently framed questions and allow them to think out appropriate answers. To remember principles is one thing, to understand them is another. One is forced to understand when one has to answer questions of all types. It is with this object in mind that I have made an attempt in this book to explain to students the entire theory of exchange by providing answers to questions of various types.

To enable the student to gain a mastery over the principles of value a large number of questions have been judiciously framed on Short and Long Periods, Normal and Market Prices, influence of Cost and Utility on Price, 'etc'. Thus the student is made to look at value from all possible angles. In this book I have confined myself to Exchange only, leaving Distribution to be dealt with separately in another book.

Allahabad

J. K. Mehta

February, 1946

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Marginal Utility for A		Marginal Utility for B		
Rice	Wheat	Rice	Wheat	
100	80	95	150	
90	70	85	130	
80	60	75	110	
70	50	65	90	
60	30	55	70	
50	10	35	50	10

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CHAPTER I

EXCHANGE—INTRODUCTORY

Q 1 What place does the theory of exchange occupy in the science of economics? Indicate its relation to Production and Distribution

One is made to realise the importance of the place that the theory of exchange has come to occupy in the study of economics to-day by the consideration of the view held by some writers that economics is the science of value. If value is dependent on exchangeability, as it always is, the theory of exchange must occupy a dominant place in the study of economics.

Economics studies, as Marshall says, man's activities in the ordinary business of life, and business, whether ordinary or extraordinary, depends to-day on a series of exchange transactions. There is hardly an individual to-day who earns his living by his own efforts. Division of labour which must have existed in the primitive days has now become all the more important. The use of money which even the comparatively ancient people knew has now become commoner than the use of anything else. And these tendencies have made necessary as well as facilitated the exchange of commodities produced by one for those produced by others. Most of our activities to-day are exchange activities.

A department of economics that can claim such an importance cannot but have a close relation to other departments of the science. Production treats of the creation of utilities of various kinds and in creating utility we have constantly to exchange things with one another. Time and place utility depend on the possibility of exchange. In

an act of production all intermediate goods have to be exchanged. As a matter of fact an act of production is never complete till the finished products, like the raw-materials, are finally exchanged for money. The efficiency of production may be determined by technical conditions but its utility and need depend upon the exchangeability of things turned out.

Distribution is but another name for exchange. We exchange one commodity for another, directly or indirectly, through the medium of money. But we distribute the wealth that is produced among the agents of production by exchanging their services for the money value of the output. Thus, distribution is the exchange of services for money, and is, therefore, governed by the general theory of exchange. The effectiveness and efficiency of the system of distribution depend on the validity of the theory of exchange and its smooth working in practice.

Production and distribution depend on exchange. The welfare of the people of a country depends more on the efficiency of the machinery of exchange than on that of the machinery of production.

In summing up, we can say that economics studies man's activities. Our activities to day are mostly connected with the exchange of goods. Hence, the science of economics is concerned mostly with the study of exchange transactions. Production itself can be viewed as consisting of a series of exchanges. And distribution is the barter of services for value produced. The efficiency of both, production and distribution, depends on the machinery of exchange.

Q 2 What do you understand by exchange, barter and buying and selling of goods?

Exchange — The giving of a thing in return for another when such a transaction is made voluntarily and freely is called exchange. A man exchanges his commodities or services for other commodities or services or for money.

Barter —The exchange of a thing for any other thing, when neither of these things is money, is called barter. One barter one commodity for another or one's services for another's.

Buying and selling of goods —The exchange of goods for money is called selling (of goods), while the exchange of money for goods is called buying (of goods). One can buy or sell his commodities or services.

It is clear from the above definitions that exchange is a generic term including barter and buying and selling as its two species. In the case of barter there is no intervention of money. In the case of buying and selling money necessarily enters as a medium of exchange.

In the modern economy buying and selling play the most important part. This is due to the use of the various media of exchange. Barter was the most prevalent mode of exchange adopted by the primitive people and is still the method by which savages mutually satisfy their wants in the less frequented parts of the world.

3 *What are the conditions necessary for exchange of commodities? State its advantages in general terms*

In order that one commodity may be exchangeable for another it is necessary, in the first place, that the conditions requisite for transferability of ownership should be satisfied. Thus, the things should be of such a nature as may allow their ownership to be transferred. This, of course, raises questions of some complications. Are qualities of men or material parts of his person transferable? It is arguable that they are in the true economic sense as much transferable as any other thing bodily outside of a man's person. If such an interpretation of transferability is not admitted we can lay it down that the first necessary condition for exchangeability is that the thing should be external to man and appropriable.

This condition being fulfilled it is further necessary that the things intended for exchange should have utility and scarcity. Neither useless nor freely available things are ever sought after by way of exchange. Here utility signifies the utility of a thing for the person with whom it is going to be exchanged for another thing. Scarcity similarly implies the necessity of effort on the part of the person who is wishing to acquire the thing by exchange.

Exchange is a transaction between two parties and, therefore, it can continue between them only so long as both of them gain (utility) by exchange. It often happens that one ceases to derive further gain from exchange, while the other party still continues to do so. But under such conditions exchange cannot be carried further.

The advantages of exchange can be stated in general terms to consist in the increase of utility, or the gain of utility that accrues to the parties to an act of exchange. Things which one has in abundance or the commodities that one can produce in quantities greater than he would like to have can be advantageously exchanged for other things which for their owners are, similarly, in excess of the required quantity. Or to be more exact, things that are for any reason less useful can be exchanged for those that are more useful.

Exchange permits full and economical use of the special qualities of persons and the peculiar features of land. A weaver devotes all his energy to weaving while a potter makes pots the whole time, and then by means of exchange they satisfy their wants of cloth as well as pots. In the absence of the possibility of exchange a weaver would have had to devote some of his time to pot making, an art in which he is less proficient. Similarly, to-day one part of a country is engaged in the production of one crop while the other part produces another crop. The yields of respective crops are then exchanged. This enables the different parts of the country to specialise in the production of

crops, a thing which would not have been possible in the absence of the facility of exchange

In summing up, we may say that exchange enables people to use their facilities and resources to the best advantage, it makes specialisation possible, secures the benefits of commerce, makes large scale production possible and leads, finally, to the increase of equality of wealth and welfare of men

4 Does the prosperity of a country or the world as a whole depend more on production or exchange under the present economic conditions?

In the primitive days the well-being of people must have depended on production to a far greater extent than on exchange. In those days productive activities were in their infancy—the technique of production not having been developed as it is to-day, with the aid of scientific discoveries—and the exchange of commodities was a comparatively simple operation. But to-day the conditions are just the reverse. Production has advanced to a stage at which all the wants of men can be easily satisfied. Over-production, rather than under-production has come to be the characteristic of our age. But our exchange operations have become much too complicated to be properly controlled. These complications are due to various causes. In the first place, they are due to more complex division of labour and more intensive specialisation, which have been stimulated by the rapid advancement in the means of transportation and communication. In the second place, they are due to the complexity of our financial system. Our entire fabric of economic life has come to depend on money, and money has gone out of our control. It is rightly said that most of our economic troubles are due to the use of money which has in its turn facilitated the use of credit.

At any rate, it is now fairly obvious that our machinery of exchange is not working smoothly. There is more wealth

than we can consume, but unfortunately we are unable to distribute it properly. It is for this very defect in our organisation that various suggestions for a betterment of our economic system are made. It is for this reason that socialism and communism and economic planning are talked of more than any other device to increase the mere production of wealth.

In conclusion, we may say that to day we know better how to produce wealth than how to exchange it or distribute it. That has resulted in much misuse of economic resources and much misdirection of our efforts. We have become slave to our financial system or at any rate to our system of exchange and distribution. We must not modify our ways of distributing wealth, we must burn crops, and throw quantities of milk in the ocean so that they may fetch better prices. Men, willing to work, must remain unemployed and food that can be produced for them must remain unproduced. Our prosperity surely depends on the efficiency of our system of distribution or exchange.

CHAPTER II

BARTER—THE DETERMINATION OF RATIO OF EXCHANGE

5 *Define barter and show how all economic transactions are fundamentally of the nature of barter*

Barter is a process of exchanging one thing for another directly without the intervention of a medium of exchange. A farmer may barter his wheat for a weaver's cloth and the weaver may barter the wheat thus received for shoes from a shoemaker. Barter of this kind has now given place to buying and selling of goods. No farmer now exchanges any considerable portion of his stock of crops directly for cloth or shoes. He first sells it for money and then uses this money—a generally acceptable medium of exchange—for whatever things he wants for final consumption. The use of such a medium of exchange greatly facilitates transactions. But whether a community uses money or not its transactions are, in the final analysis, mere exchanges of goods—money playing a part merely of a medium of exchange. Thus, a wheat grower even to day wants to exchange his wheat for cloth and shoes and does eventually do so though, of course, the medium of exchange comes in to facilitate the operation. The nature of transactions does not radically differ from what it would be in a barter economy. The difference brought about consists in the ease of transfer and consequently in the rapidity with which exchanges are made. Trade, of course, develops and the process of saving and the accumulation of capital are facilitated. But the transactions still remain essentially of the nature of barter. So also is international trade and commerce. A nation seldom pays another in terms of any medium of exchange. In the long run the exports balance imports and the year to year fluctuations causing discrepancy between them does not necessitate the actual transfer of gold—the international money—to any very great extent.

We see, therefore, that money is in the right sense a mere medium of exchange and our transactions are not radically altered by the use of money, provided money is neutral, that is, provided it is made to play the role of a medium of exchange, by the financial authorities

Q 6. What are the conditions necessary for barter of goods between two parties? When does barter stop?

The first condition necessary for barter is that a person wishing to exchange his commodity for another should be able to find not only somebody who possesses that commodity but one who possessing it wishes to exchange it for his commodity. Thus, a man desiring to exchange his cloth for a cow should come across a man with a cow who is also desirous of exchanging his cow for cloth. In the absence of such a double coincidence no barter can take place.

In the next place, there is the difficulty of fixing upon a proper ratio of exchange. In the case of divisible commodities this difficulty does not arise. For example, in the case of sugar and wheat it is possible to settle a ratio of exchange such as, 1 seer of sugar for, say, 5 seers of wheat. But when commodities are not thus divisible, the difficulty becomes great. How to exchange a horse for a cow? Perhaps one values a horse at two cows but the other having only one cow cannot get half a horse in exchange.

This difficulty can be expressed in a more general way. It is necessary to fix a ratio which is acceptable to both the parties. The sugar producer may want at least 5 seers of wheat for 1 seer of sugar while the wheat grower may be willing to part with only four seers for a seer of sugar. In such a case no barter is possible for any quantity of sugar equal to or more than a seer of sugar. Generally in such cases it is possible to find a ratio of exchange that would be acceptable to both the parties, provided commodities

are divisible For example, in the above case, for the first half a seer of sugar the wheat producer might be willing to pay at the rate of 4 seers of wheat for a seer of sugar

This condition can also be expressed in the words that barter requires that both the parties should gain some utility by exchange As barter proceeds the gain of utility, other things being equal, diminishes, and when it disappears for either or both barter ceases, unless, of course, a change of ratio again secures surplus utility for the parties

Q 7 If A has apples and N has nuts, show that barter will begin when

$$\frac{\text{The Initial utility of nuts to A}}{\text{The marginal utility of his apples to A}} \text{ is greater than } \frac{\text{The marginal utility of his nuts to N}}{\text{The initial utility of apples to N}}$$

If A has apples and wants to exchange it for B's nuts it is necessary that the utility of the first unit of nuts to him (A) should be greater than the marginal utility of his apples, otherwise he would not gain utility by exchange We can say, therefore, that it is necessary that

$$\frac{\text{Initial utility of nuts to A}}{\text{Marginal utility of apples to A}} \text{ should be greater than 1}$$

For exactly the same reason N would not be willing to exchange his nuts for apples unless the following condition is satisfied

$$\frac{\text{Initial utility of apples to N}}{\text{Marginal utility of nuts to N}} \text{ should be greater than 1}$$

This condition implies that

$$\frac{\text{Marginal utility of nuts to N}}{\text{Initial utility of apples to N}} \text{ should be less than 1}$$

This ratio being less than one must itself be less than the first ratio which is greater than 1 Hence, we get

The initial utility of nuts to A
The marginal utility of apples to A should be greater than

The marginal utility of his nuts to N
The initial utility of apples to N

Q 8. The following table gives the marginal utilities of wheat and rice to A and B. If one seer of rice exchanges for one seer of wheat how far will exchange proceed and what will be the gain of each in terms of utility? Assume that A has rice and B has wheat

Marginal utilities for A		Marginal utilities for B	
Rice	Wheat	Rice	Wheat
100	80	95	150
90	70	85	130
80	60	75	110
70	50	65	90
60	30	55	70
50	10	35	50

When one unit of rice is exchanged for one unit of wheat A, by giving away 1 unit of rice surrenders 50 units of utility (the marginal utility of rice to him) but gets in exchange one unit of wheat which has for him 80 units of utility. He gains, therefore, 30 units of utility by the first step of exchange. Similarly, by exchanging one more unit he would gain 10 units of utility. We can tabulate the result as follows

A gains by the exchange of 1st unit	30 units of utility
" " " 2nd unit	10 units of utility
" " " 3rd unit	10 units of utility

On the other hand, B surrenders 50 units of utility by giving away 1 unit of wheat and secures 95 units of utility from rice which he gets in exchange. His gain can be tabulated as follows

B gains by the exchange of	1st unit	45 units of utility
" " "	2nd unit	15 units of utility
" " "	3rd unit	15 units of utility

We see from these tables that both A and B begin to lose utility by exchanging the third unit of rice and wheat, respectively. Hence, barter naturally stops after two units of rice have been exchanged for two units of wheat. The gain to A, as we can read from the table, is 40 units of utility, while that to B is 60 units of utility.

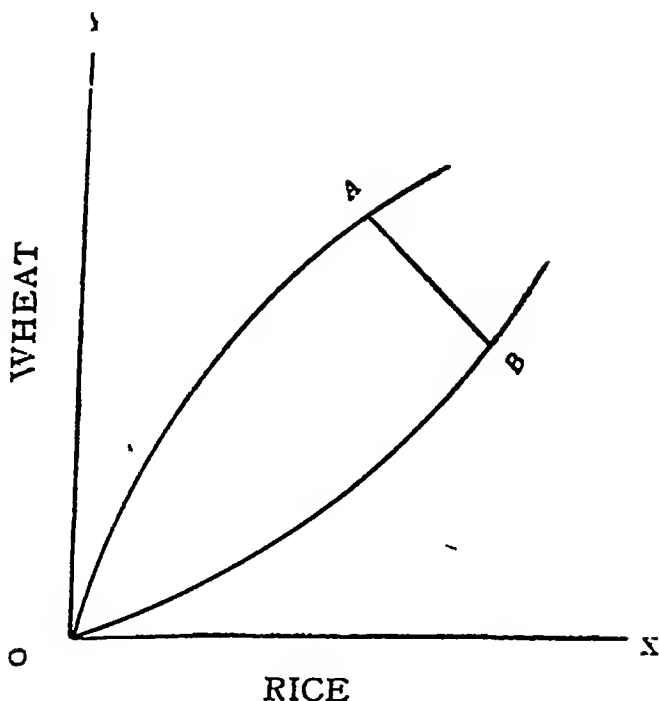
In summing up we can say that barter proceeds up to the point at which both the parties begin to lose utility by the act of exchange, and that the gain to each is calculated by subtracting from the initial utilities of the thing received, the marginal utilities of thing given up.

Q 9 What do you understand by Indifference curves and Contract curves?

When a man exchanges a thing for another he seeks always the terms that are most advantageous to him, that is, he tries to obtain the maximum surplus of utility. If he is a clever bargainer he has chances of succeeding in getting as much of the other's commodity as he can compel him to surrender. If he cannot secure any surplus of utility by such an exchange he will not at any rate submit to any loss however small. The rate at which he would be left with no surplus if one unit of his commodity were exchanged indicates a position of indifference. For, he would be indifferent to the exchange of one unit at that rate. Similarly, there is a rate at which he would be indifferent to the exchange of his second unit.

It is possible to represent this situation by means of a curve. If we measure one commodity on the X-axis and the other on the Y-axis, we can plot points to indicate the amounts of two commodities which when exchanged for each other would yield no surplus utility to the persons exchanging.

them The curve passing through such points would be called an Indifference Curve



In the above diagram quantities of Rice are measured along OX and those of wheat along OY . Suppose A has wheat and exchanges it for rice. His indifference curve would then be of some such shape as Oa . From the concavity downwards of this curve it is evident that he is willing to surrender a smaller and smaller amount of wheat for each succeeding unit of rice. This is in conformity with the law of diminishing utility (in this case of rice to A). If B be the person who has rice and wishes to exchange it for wheat his indifference curve would be of the shape indicated by Ob . Both the curves start from the origin because neither A nor B would be willing to give any quantity of his commodity without getting the other's commodity in exchange.

If exchanges are carried on along the curve Oa they are most favourable to B conversely, when they are

carried on along Ob they are most advantageous to H 1 they were to be carried on along any curve intermediate between the positions marked by Oa and Ob , they would be advantageous to both

When A and B bargain freely and sometimes one and sometimes the other has the better of the bargain the exchange transactions would be represented by points between the curves Oa and Ob , lying say along the curve ab . Such a curve ab is technically known as the contract curve. A point on ab nearer the point a than b indicates a rate of exchange that is more favourable to B , and *vice versa*.

Q 10 Show that in the case of barter the final ratio of exchange is that at which the marginal utilities of the two commodities for both the parties are in proportion to that ratio.

Two persons may begin exchanging their commodities at a rate that may be very favourable to one of them. For example, A may be able to secure 15 nuts for one apple, whereas the marginal utilities for him may be in the ratio of 1 10. He would be satisfied with 10 nuts for an apple but may succeed in getting 15. The other person, N , would find this rate of exchange acceptable to him, but would after a time be unwilling to effect further exchanges at that rate. The rate would then, be lowered to, say, 1 12. But, by that time A would be less anxious to have more nuts (because of diminishing marginal utilities of nut to him). Whereas formerly he would have been satisfied with 10 nuts for an apple, he would now want more than 10 nuts for say, 11. The difference, therefore, between the rate at which he would be willing to barter and the rate at which he is actually able to do so decreases as barter proceeds further and further. In the end, that is when barter stops, the difference would disappear altogether and the acceptable rate and the actual rate would coincide. That is the ratio of exchange would finally equal the ratio of marginal utilities (what we have called the acceptable rate).

CHAPTER III

MARKET—AND THE SIGNIFICANCE OF VALUE

Q. 11 Define market What are the essential features of a market in its true economic sense ?

The word market must offer difficulties to those who seek its definition in logical words. To determine the genus to which it belongs is a difficulty great in itself. But what is perhaps more difficult is to find a meaning for this term to which we can adhere in all uses of the word in the study of economics

One fact however stands out prominently in the definitions of market as given by various noted writers, namely, that the word does not stand for a compact place in which all sorts of things are offered for sale. It may, as a matter of fact, be scattered in this sense. We can have a world market, for example, of silver or gold, or rubber or cotton, and yet cannot observe the sellers or buyers of these commodities concentrated in one compact place. Another fact is that in the economic sense a market means a market for a particular commodity. The attention is directed more to the commodity of trade than to a place, and more to buyers and sellers of it than to buildings and shops in which the commodity is stocked

But these few remarks indicate the essence of a market and do not lead us directly to a definition. Before we attempt to do so it would be of interest to note here some definitions of other writers

Prof Ely says, "We mean by the market, not any particular area where things are bought and sold but the general field within which the forces determining the price of a particular commodity operate"

Prof Chapson says, "Economically interpreted, the term market refers not to a place but a commodity or commodities and buyers and sellers of the same who are in direct competition with one another"

Prof Hobson has simpler definition He says, "Market is the name given to a number of directly competing businesses"

Prof Jevon's definition is famous He says, "Originally a market was a public place in a town where provisions and other objects were exposed for sale, but the word has been generalised to mean any body of persons who are in intimate business relations and carry on extensive transaction in any commodity"

Walker writes, "The term market in Political Economy should have reference first to a species of commodities, secondly to a group of exchangers—there are as many markets as there are groups of exchangers"

Lastly, we may note Cournot's definition "Economists understand by the term market not any particular place in which things are brought and sold, but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality easily and quickly"

From a study of these definitions the following important facts emerge First, that a market does not refer to a locality, second, that the word has reference to buyers and sellers of a commodity and, third, that there is competition in a market

The distinguishing feature of a market then appears to consist in free competition leading to the prevalence of the same price for the same commodity at the same time If competition is perfect, the price must be the same all through the market But competition is seldom, perhaps never, perfect, the imperfection being due to lack of information, cost of transport, levy of taxes and so forth. There is no perfect market, therefore, for any commodity

Now, what after all does a market consist of? Of buyers and sellers? Of the organisation of buyers and sellers? Of the stock of the commodity? Or of the intercourse between buyers and sellers? The above definitions do not help us to find a clear and definite answer to this question. Perhaps the truth lies in the fact that a market is 'none of these things'. A market 'place' means a definite place, it is a concrete thing. But in the sense in which the word is used in economics it is not possible to point out a thing and say that this is a market. It can, however, be said that this commodity has a market, meaning that it has supply and demand.

The view that a market is characterised by free competition has even been contested, and quite rightly too.

Q. 12 What do you understand by the following?

(a) a big market, (b) a wide market, (c) a steady market, (d) a localised market

- (a) A big market—A market is said to be big when the supply of and the demand for the commodity in question is big, that is, when a large amount of a commodity is bought and sold within a given period of time. The phrase does not necessarily convey the idea of a large number of buyers or sellers, but of the largeness of the volume of transactions effected in a given period. As the supply of a commodity, in the long run, is determined by the demand for it, it would be correct to say that the bigness of the market consists in the largeness of the volume of demand. But it is really the exchange of the commodity for money that is kept in mind when we talk of the business of a market.

Further, it is necessary to note that it is not the value of transactions that determines the size of the market but

the number of commodities or its quantity. It is not possible to compare the bigness of the market for one commodity with that of the market for another commodity. This is due to the fact that there is no common standard for measuring the size of the markets for different commodities. We can, however, compare the size of the market in one country with that of the market in another, provided they are markets for the same commodity.

- (b) **A wide market**—A wide market is one the buyers of which are spread over a wide region. In other words, the width of a market refers to the extensiveness of the region covered by it. A wide market may not necessarily have the supply of the commodity located at various places over a wide range. It is enough to have the buyers spread over a wide region. A pertinent question is whether a market can be said to be wide if the sellers are spread over a wide region while the buyers are all concentrated in a small region. It seems necessary here to stick to the popular conception of the width of a market and therefore maintain that not the sellers but the buyers must be spread over a wide region.
- (c) **A steady market**—A steady market is one in which the price of the commodity concerned does not fluctuate from time to time. As a matter of fact, it is difficult to find a market for a commodity the price of which does not fluctuate at all. However, we can speak comparatively and say that the market for this commodity is steadier than the market for that commodity. Fluctuations in the price of a commodity are due to fluctuations in the supply of or the demand for that commodity. But when the fluctuation of demand or the supply are accompanied by corresponding fluctuations of

the supply or the demand they may cancel each other's effect and thus exercise no influence on the price. The cause of a steady market is, therefore, the prevalence of a balance between the fluctuations of demand and supply.

- (d) **A localised market**—A localised market is one the supply of the commodity in which is localised in a particular place. In the case of a localised market a definite region or place is set aside for the sale of the commodity concerned. When it is said, however, that a commodity has a local market a different idea is meant to be conveyed to the mind. When the commodity is sold only within the limits of a particular locality it is said to have a local market.

It may be said in the end, that a big market is likely to be wide also and it is not very likely to be localised. Similarly, a wide market is likely to be big. However, there is no necessary relationship between a big and a wide market or between them and a localised market. It is possible, however, to say that the wider the market the steadier it is likely to be, for the fluctuations of demand in different places are likely to cancel one another.

Q. 13 What are the conditions necessary for a commodity to have a wide market? What are the advantages and disadvantages of having a wide market?

A commodity has a wide market when the buyers are scattered over a wide area. Hence, the first condition necessary for a commodity to have a wide market is that it should be of such a general use as to be in demand over a wide region. A thing that can be used for various purposes, such as, rubber, gold or wheat, is likely to be in more general demand than other commodities whose use is more restricted.

In the second place the commodity must be transportable, otherwise it cannot be sent out to purchasers who are so

widely scattered. Transportability implies several things. Not only should there be means of transporting the things, but the commodity itself should be movable. For example, houses and roads are not transportable. Besides, this, transportability depends upon the cost of transportation—not absolute but relative. If the cost of transportation is a big percentage of the value of the commodity it is not possible to transport it profitably. For this reason even such movable things as bricks are not transportable over a wide area.

Transportability further requires that the commodity should not be easily perishable. Longer the distances to cover more time does transportation take and if a commodity cannot stay for that time it, for that reason, becomes impossible to transport it.

The third necessary condition is that buyers of the commodity should be able to know the quality and grade of the commodity before purchasing it. Things which can be described easily, things the quality or grade of which can be named and things samples of which can be easily sent to various places, are said to be cognizable. Such things can have a wide market.

Lastly, it may be mentioned that the commodity should have a comparatively large supply. A very small supply is likely to be absorbed by the rich few, of a certain place. If, however, the buyers of different places do not differ in their purchasing power it is possible for a small supply to have a wide market.

For the seller of a commodity it is advantageous to have a wide market because then the demand for it is likely to be less fluctuating. For, a decrease of demand in one place is likely to be counter-balanced by an increase of demand in another place. Stability of demand is, of course, a very desirable thing. It makes it easier to

forecast the future and accordingly plan production with confidence.

It is difficult to find a substantial disadvantage of a wide market. If, however, a wide market means that, on account of specialisation, one part of the world is supplying the needs of the whole world, it must be considered as a source of danger in times of war. Self-sufficiency, though not desirable in times of peace, is certainly a thing on which national safety depends in the event of a war.

Q 14 What is the economic meaning of supply? Explain it with reference to demand

A person is said to have a supply of a commodity when he is willing to offer it in exchange for something else. Mere possession of a stock of a commodity does not constitute supply. This term, like the term demand, implies an act of exchange or a desire to exchange things. To demand a thing is to desire to obtain it, to supply a thing is to express the desire to give it away. In the case of buying and selling, the demand for a book means the same thing as the supply of money and the supply of a book the same as the demand for money.

In a market at a particular time buyers are willing to buy a certain amount of commodity at the ruling price, and sellers are willing to sell a definite amount. The demand and supply may not be the same, but they are equal at some definite price, which is called the equilibrium price. The lower the price the greater is the demand, and smaller is the supply and *vice versa*. At price, say Rs 5/- buyers' demand may be for 3 units while the sellers' supply may be 5 units, or the demand may be 5 units and the supply only 3 units. In either case only 3 units can be sold. Just as price determines the size of effective demand so also it determines the size of, what may be called, effective supply. He who is willing to sell is said to have a supply, whether the supply becomes effective or not depends upon the price or ratio of exchange.

Q 15 What are the factors that determine the supply of a commodity in short and long periods ?

The answer to this question depends upon what one means precisely by short and long periods. It is necessary, therefore, to fix their meanings before answering the questions. A short period, we shall say, is that period during which the quantity of the commodity in question cannot be increased. A long period is one in which such an increase is possible. It is sometimes said that in a moderately long period the increase of the stock is brought about only by using the factors of production for a longer time. In a very long period the quantity of factors themselves can be increased. More need not be said about the length of the period here.

In a short period then, the supply of a commodity is determined by the willingness of the sellers to dispose of their stocks. They can at the most sell the entire stock, so that the upper limit to the supply is set by the existing stock. If the commodity is perishable (with reference to the short period) the supply is very likely to reach this upper limit, and would certainly reach it in case of competition. If the commodity is not perishable a part of the stock can be held over, if the demand is expected to strengthen in the future. However, as a general rule, we can say that in the short period the supply is more or less fixed and tends to equal the existing stock.

In a long period, the stock of the commodity can be increased and hence the upper limit to it is not set by the stock existing at any moment of time, in the manner in which it is in a short period. What, under these circumstances, determines the supply is the strength of the demand. There will be a tendency of course for so much to be produced as can be disposed of at a price that fairly covers the cost of production. In other words the stock and supply would tend to adjust themselves. However, it is not only the demand that will fix the supply

in the long run. The considerations of cost will greatly influence the production of the commodity. The higher the cost the lesser the production, and stronger the demand the greater the production, other things being assumed to be the same

In short, in the long period the supply is determined by the cost of production and the demand price

Q 16 What is the difference between supply and stock of a commodity? How does one depend upon the other?

By stock of a commodity we mean the amount of it that exists at a particular time, while by supply we mean the amount that the sellers are willing to dispose of. As a matter of fact, the sellers cannot sell a larger amount than is in stock with them. But, provided the price is favourable, a seller may be willing to supply a quantity greater than his stock by procuring the extra amount from other sellers. Taking all sellers or the whole world, the supply can never exceed the stock at any given time

With reference to a given price, it can be said that the supply is seldom equal to the stock, if, of course, by willingness to dispose of a commodity we do not mean the mere desire to sell unbacked by the ability to do so

The supply of a commodity depends upon the stock, therefore, in the sense that it cannot exceed it—the stock fixes the upper limit to the supply at any given time. In a very short period, in other words, the supply depends upon the stock

The amount of stock itself, is in the long run determined by the supply. The willingness to sell determines the willingness to produce. In the long period, therefore, the stock tends to equal the supply and may consequently, be said, to be determined by it

Q 16. What is the meaning of value? Explain it with reference to price

The word value means in Latin "worth". Hence, the original meaning of value was worth, and, of course, its meaning to-day is not very much different from it.

Ordinarily the word value signifies utility. Thus, Prof. Seligman says, "Value of anything is the expression of our estimate of its utility." But in economics the word has now come to be used in the sense of exchange value. Value is judged by what it can exchange for, and not by how it satisfies an individual's want. While utility is a concept that refers only to one individual, value has a necessary reference to two persons.

The two uses of the word value have given rise to two expressions, value in use and value in exchange. In further discussions we will stick to the modern conception of value.

Value, is therefore, measured by the quantity of other commodities that can be obtained in exchange for the commodity in question. We can measure the value of a commodity in terms of any other commodity. When it is measured in terms of money it is called price. Price, is, therefore value in terms of money.

To-day since all things are exchanged through the medium of money, value has come to be identified with price. It seldom becomes necessary to calculate value in terms of any other commodity.

The value of a commodity in terms of another can only rise or fall with a corresponding fall or rise of that other commodity. Similarly, the price of a commodity rises or falls with the fall or rise of the value of money. The change in the price of one commodity does not signify the change in that of another. It is possible for the price of a commodity to change, *in the short period* without the price of any other commodity changing, but the value of

a commodity cannot change without the value of some other commodity changing.

The value, in terms of commodities, of all commodities cannot change together in the same direction. The rise of some must mean the fall of others. But it is possible for prices of all commodities to rise or fall together, such changes being due to the changes in the quantity of effective money in circulation.

Q 18 Does value depend upon utility of scarcity or both?

Value can be defined as the power of a commodity to command other things in exchange. This interpretation of value conforms to its meaning in the sense of value in exchange — the meaning that it has now acquired in economic theory. We shall, therefore, mean by value only exchange value.

The question before us is whether value depends upon utility or scarcity or both. If a thing has to be capable of getting other things in exchange, things which are themselves useful, it must itself be useful. A thing that has no utility cannot be exchanged for another useful thing. Hence, a thing has value in terms of another thing when it has utility for the possessor of this other thing. The conception of value, therefore, involves the consideration of at least two things both of which are useful. Two things can be bartered for each other only when both of them have utility, though not necessarily for both. If wheat has value in terms of rice, all that necessarily follows is that the wheat has utility for one and rice for the other. Generally, of course, things exchanged, have utility for both the parties.

It appears from the foregoing considerations that the only condition necessary for value is utility. But if we study the problem more carefully we shall find that the conception of scarcity is also involved in these considerations. A thing that is not scarce can have no value. Value, in

other words, depends also upon scarcity. The understanding of this relation of value to scarcity depends upon the correct conception of the word scarcity

Let us approach the problem in the following manner. Suppose there are only two men one of whom has wheat and the other rice. We have already said that if they have to have value wheat must have utility at least for the rice owner and rice for at least the wheat owner. If supposing that this is the fact, that is, if rice and wheat have no utility for their respective owners, each will be willing to part with the entire amount in his possession for the least quantity of the other's commodity

In such a case the value of each commodity would clearly depend upon its quantity. If, for instance, A has 5 maunds of wheat (useless to him) he would be willing to give it away for even a seer of rice and if the bargain were made at that rate the value of a maund of wheat would come to be $1/5$ seer of rice. If, on the other hand, A had 10 maunds of wheat, under similar circumstances, the value of a maund of wheat would be $1/10$ seer of rice

Now, it is true of course that there is hardly anything that has no utility for the owner. The example taken by us is, therefore, only imaginary. But even if we suppose that things have utility for their owners the argument would be the same in substance

In a market where there are many buyers and sellers, the larger the supply of a commodity the greater is the extent to which it can satisfy the wants of others. A small supply can meet the more urgent or stronger wants, while a larger supply can meet even less intense wants. Hence, when the supply is larger, the marginal utility of it is lower. Hence, supply determines marginal utility and, in a market it is the marginal utility that determines value

Hence, starting from the fact that it is utility that imparts value to a commodity, we can argue that the intensity of

value depends upon the degree of utility. If we are considering the case of a market we can say that the measure of value depends upon the degree of marginal utility. But marginal utility depends upon the amount of a commodity available. Hence, value depends upon the size of the available supply.

Scarcity of a commodity has reference to its stock. The greater the stock the less is the scarcity and the smaller the stock the greater the scarcity.

It can, therefore, be argued that value depends upon utility but that the utility on the margin itself depends upon the scarcity or abundance of the commodity in question.

Q. 19. Explain that value equals both marginal utility and cost of production

As price is value in terms of money no difference will be made in our arguments if we use the word price in place of value. The advantage, however, of so doing is that it enables us to answer the question in words which are more in accord with popular usage.

The price of a commodity, in a market, is one which satisfies the buyer as well as the seller. If it is unremunerative to the seller he does not sell his goods at the price and if it is too high for the buyer he goes without the commodity. A price may satisfy the buyer and seller in different degrees but the ruling price is one that does suit both the parties.

The buyer's consideration in purchasing a commodity is that the price asked for should not exceed the utility of that commodity. The first few units purchased generally yield more utility than the price measures for him. But even the last unit purchased, which of course has much less utility, should give at least as much utility as he goes without in paying the price. In other words, the marginal

utility of the commodity just measures the utility "that the price is equal to. Price equals the money value of marginal utility of the commodity purchased.

But since the price suits also the seller it must be equal to what he loses by giving away the commodity. And, of course, he loses what the commodity has cost him, that is, the cost of production. Whatever sacrifices are involved in producing the commodity must be at least compensated for by the price. If sacrifices could be measured in money, the price must at least equal that amount. If it does not, he loses and in future discontinues producing that commodity or arranges to reduce his output so that it may command a higher price. However, the first few units of the commodity produced may not cost him much (sacrifice) so that it may be more than compensated for by the price. But even the cost of the last unit (which is greater than the cost of the first) should be covered by the price.

It follows, therefore, that value or price equals both marginal utility and marginal cost, of production. (It is possible to carry the reasoning a step further and show that cost is merely the utility of what is foregone in order to produce a thing. That is, cost is the utility of another thing that could have been enjoyed as an alternative to the commodity in question. Taking this view of cost price or value can be shown to be determined by the equation of the marginal utility of the commodity with the marginal utility of other commodities.)

20 *Show that the value of reproducible commodities and those which are not reproducible are governed by slightly different conditions*

The prices of commodities whether reproducible or not are determined fundamentally by the same principle, namely, the interplay of the forces on the supply and demand sides. But the forces themselves are different in the two cases. As far as the factors on the demand side are concerned

they are the same, but those on the supply side differ according as the commodity is reproducible or not.

As we have discussed before the price of a commodity, provided it is reproducible, is determined by marginal utility and the cost of production. But in the case of commodities which cannot be reproduced there is no cost of production to enter into our picture. What is that which the sellers then want to recover by charging a price? In a sense there is nothing that they want to recover. In such a situation the sellers become virtual monopolists with a restricted or fixed stock. They are thus in a position to dictate their own price, subject only to the influence exerted by the marginal utility of the commodity on the demand side. The highest price they can charge, they would actually charge being assured that no other producers can produce the commodity to inflate the stock of it.

A price if it is to be effective must, however, not exceed the marginal utility, otherwise it would be impossible to find buyers. A sufficiently high price can be charged if the entire stock is not meant to be sold off, for then the richer buyers or more eager ones only would be disposed to buy the commodity. The entire stock can be sold off only at a price that equals the value of marginal utility of the stock.

Being in a position of monopolists the sellers are, however, likely to act on the principle of maximum monopoly income and charge only that price which would maximise the income (not net income because the commodity is not reproducible), no matter whether by so doing he is able to dispose of the entire stock or not.

In a very short period, however, the price of a reproducible commodity is also governed by these very principles, because the supply cannot be increased in a very short period.

Q. 21 Would the conception of value be of importance in a non-exchange economy ?

Value as interpreted in economics today, necessarily implies the possibility of exchange. Value of a commodity necessarily means the value in terms of other things. Our present-day economy is predominantly an exchange economy. The satisfaction of our wants is generally effected by means of a net work of exchanges. It is for this reason that the ratio of exchange or the conception of value of a commodity has come to figure so prominently in the study of economic principles to-day.

In a non-exchange economy the conditions of living would be vastly different. Economic relations between men would be entirely absent and the satisfaction of wants would be brought about by individual's efforts unaided in any way by the efforts of others. Exchange of things would no more figure in the pursuit of economic ends. Value, therefore, as we understand it would be an useless conception.

Q. 22 Explain briefly the various theories of value

Let us first state and explain the Utility and Cost of Production Theory of Value—This is the modern theory of value and has come to be accepted as providing the most satisfactory explanation of value. It states that value depends upon utility as well as scarcity (which implies the cost of acquisition or reproduction). In the case, therefore, of reproducible commodities it is the interaction of utility (marginal) and cost of production that goes to determine value. The importance of utility is brought out by the consideration that a thing which is useless would never be sought after and, consequently, command nothing useful in exchange. On the other hand, the cost of production or acquisition is important because thing that costs nothing to produce or acquire would not require the payment of any other thing, that is, there would be no necessity to surrender something useful in order to obtain it. Thus utility and scarcity or the cost of production are the two essential conditions. The greater the utility the

higher the value and the higher the cost of production the greater the value, other things being assumed equal. The converse is also true.

The failure to attach due importance to both these demand and supply sides has given rise to many other erroneous theories of value. Those who have paid exclusive attention to the demand side have been led to put forward utility theory of value.

Utility Theory—This theory states that value is due only to utility. The fact that utility is necessary and without usefulness a thing can have no value has, for some, obscured the fact that scarcity is the second necessary condition for value. It is true, of course that there is hardly anything that has no scarcity or that does not require an effort to reproduce it or acquire it for use. But the fact still remains that value is due to scarcity and fluctuates with changes in the degree of scarcity or the cost of acquisition.

Scarcity Theory—This theory errs on the other side. It lays the entire emphasis on the supply side. It ignores the fact that utility is one of the necessary conditions for value. Variations in utility cause changes in value, unless, of course, corresponding and opposite changes on the supply side nullify their effect. It is, of course, true that almost everything has utility for somebody or the other and this fact probably obscures our understanding of the true importance of utility as a factor in the determination of value. A thing, when it is useless to all those with whom it can be exchanged, can certainly have no value.

Marginal Utility Theory—This is a refinement of the utility theory of value. Its special feature consists in the emphasis laid on marginal utility as the determinant of value. It is true that in a market or outside it if competition prevails, it is the marginal utility that is effective in determining value. If one has to pay a price that is the same for

all units of the commodity purchased, it must not exceed the utility of the last unit. It can equal it, however, and since the utility of the last unit is marginal utility of the commodity, it follows that value or price has to be equal to marginal utility.

This theory, however, errs in neglecting the supply side. Scarcity, reflected in cost of production as we have seen, is the other determinant of value. The only way of defending the position would perhaps be to argue that even cost of production is in itself a measure of utility of other things which are surrendered in making or acquiring the commodity in question. But even this view cannot make the value of commodity depend on its marginal utility only.

Cost of Reproduction Theory—This theory recognises the fact that the scarcity of a commodity is due not to the fact that its production had cost some effort but to the more important fact that its reproduction would require such a cost. In other words, the value of this theory consists in its directing our attention to the fact that scarcity of a commodity is caused by the difficulty of adding to its supply. Enough has, however, been said to make it clear that cost is only one of the necessary conditions of value.

Labour Cost Theory—The general cost of production theory is sometimes made even narrower in an attempt to discover the ultimate cause of cost. It is true that cost means finally the cost of effort or more correctly it consists in abstinence of some kind or another. But labour is only one kind of effort and is accompanied by one special kind of abstinence and, therefore, to identify the entire cost with labour amounts to ignoring some other important elements of cost. This theory further errs in not recognising the importance of utility in determining value.

CHAPTER IV

THE DETERMINATION OF PRICE

Q 23. *What do you understand by the following ?*

- (a) *Real cost of production ?*
- (b) *Money cost, and*
- (c) *Expenses of production,*

which of these is of the greatest significance in the study of the theory of exchange ?

- (a) The production of a commodity by an entrepreneur requires the expenditure of money to be paid to hired agents of production, the use of factors owned by the entrepreneur himself and the making by him of certain sacrifices in the shape of work, trouble and risk or anxiety. All these taken together constitute what is called in economics the cost of production. It is the most comprehensive of all the three terms that we have to discuss here. It includes, in other words, sacrifices made by all those persons who directly or indirectly take part in production. Cost of production, therefore, never appears evaluated in terms of money payments. But in the long run, since price must cover the entire cost, it has to be equal to price. It is the price of a commodity, therefore, which indicates in terms of money the aggregate value of cost of an unit.

It follows from what has been said that cost is a very significant conception. In the theory of exchange, in which we study the buying and selling of commodities, this

cost plays the most important part. The exchange value of a thing must equal the cost of production. The price of a commodity must adequately remunerate the producer or the entrepreneur for all his efforts.

Money Cost—Money cost stands for the measure of real cost in terms of money. Price may, therefore, be spoken of as money cost of production. This expression is seldom used in economics because real cost, expenses of production and price are sufficient to explain all the useful concepts. The money cost, we have said, should equal real cost, the only difference is that money cost is an objective concept whereas real cost is a subjective one.

Sometimes, however, the expression money cost is used in the sense of expenses of production but in the interest of clarity of thought it is necessary that its use in this sense should be abandoned.

Expenses of Production—Expenses of Production stand for those elements of cost which are incurred directly in money. The payment made in money to the hired agents of production constitute expenses of production. They do not cover the entire cost of production. Price, therefore, in equilibrium, cannot be equal to mere expenses of production.

Hence, expenses of production are not of much importance in the study of the theory of exchange. The only importance of expenses of production is that a producer can, for a short period of time, go without remuneration for his own efforts and the use of his own factors, but he must pay the hired factors. These expenses must, therefore, be met somehow. They constitute the most insistent demand on the entrepreneur.

Q 24 What is the meaning of marginal cost of production? Explain it with reference to the cost of marginal and extra-marginal firms.

Marginal cost of production as the very phrase suggests is the cost of production at the margin. It always refers

to the cost of production of the unit that happens to be the last, under a set of given conditions. The words last unit may have reference to the last unit of a particular firm or the last unit supplied by an industry as a whole. Thus we can interpret the expression marginal cost of production in the following ways

1. It may mean the cost of production of the marginal firm—that is, the least efficient firm. It may be the least efficient because of the inefficiency of any or all factors of production or because it has not attained maturity.
2. It may mean the cost of production of the last unit produced by any firm—be it the least or the most efficient—that is, it is measured by the addition made to the cost of a firm by the production of one more unit.
3. Lastly, it may mean the cost of production of the last unit produced by an industry as a whole and may be measured by the addition made to the aggregate cost of production of the industry by the production of one more unit of output. The difference between this marginal cost and the previous one is due to the fact that the increased output of one firm may have an effect on the efficiency, and therefore on the cost of production of other firms in the industry as well. The increase of cost to one firm caused by the production of an additional unit may or may not be counter-balanced by changes in the cost of production of other firms in the industry.

The marginal cost noted in (2) takes account of one firm only and is, therefore, sometimes called private marginal cost to distinguish it from the marginal cost to an industry which may be called collective marginal cost.

Now, confining ourselves to the first two interpretations of marginal cost, let us try to see if there is any difference between them. When there is competition in a market and all units of a commodity are sold for the same price, the efficient as well as the inefficient firms get the same price for their outputs. The marginal firm, therefore, is just able to cover its cost of production by selling the output at the market price. All other firms, superior in efficiency, thus earn a surplus. The marginal firm cannot afford to sell at a loss. Hence, the marginal cost cannot exceed the price. On the other hand, if the marginal firm were to make a surplus profit—surplus above cost—new competing firms would invade the field and by increasing the supply lower the price till it equalled the price. In a position of equilibrium, therefore, the cost of production of the marginal firm must equal the price.

(Theoretically, it is arguable that provided competition is free and mobility and divisibility of all factors perfect, the output of the marginal firm must be limited to one unit, so that the marginal producer would secure no surplus whatsoever above cost)

The firm whose efficiency is greater and whose cost of production is consequently lower are able to secure a surplus above their cost by selling the output at the market price. But just to take full advantage of this surplus each such intra-marginal producer goes on increasing his output till he finds that, due to the operation of the law of diminishing returns, the cost of the last unit has gone up to equal the price. Each producer, therefore, finds his marginal cost equal to the price.

We can now say that the price equals both the marginal cost of every firm and the cost of production of the marginal firm, and in such a position of equilibrium the demand and supply are equal at the prevailing price. Every change in the condition of supply or demand must, therefore, dis-

turb this position of equilibrium. For example, an increase of demand would raise the price enabling the marginal firm, to earn an extra profit. There would be a discrepancy between the price and the cost of production which would continue till the condition of profit prevailing in the industry attracted new comers to increase the output and thus again bring down the price.

Q 25 What is Prof Marshall's conception of a representative firm? Show that it is the cost of production of a representative firm that is of significance determination of normal price

In the words of Prof Marshall a representative firm "must be one which has had a fairly long life and fair success, which is managed with normal ability and which has normal access to the economies, external, and internal, which belong to that aggregate volume of production, account being taken of the class of goods produced, the conditions of marketing them and the economic environments generally." It is clear from this description of a representative that Prof Marshall means it to be a kind of average firm but as he himself says, a representative firm is not in every sense an average firm. However, it is an average firm in the sense which is important for our purpose, that is, important for the purpose of the study of the factors that determine normal price. The words "normal ability" and "normal access" are indicative of the meaning of such an average firm.

In every industry, due to constantly changing circumstances, there are some firms which are struggling or decaying and other that are immature but growing up. In its infant stage a firm has a high cost of production, which more or less continually falls with the approach to a state of maturity. But like every organism a firm reaches, after some time, its old age. It grows out of date, inflexible and stiff. Its cost of production begins once more to rise, the period of decline begins. As the old and declined firms eventually disappear, new but

immature firms take their place. One has to recognise the dynamic character of economic situation to form a clear conception of representative firm.

The normal price of a commodity, as we know, is determined by the cost of production. It is assumed while making such a statement that the average cost of production is the same for all firms in an industry. In a static state they would certainly be equal, in a dynamic state they tend to be equal. When, however, the cost of production is not the same for all firms the question becomes pertinent as to which firm's cost of production determines the price. The answer to this question is that it is the cost of the representative firm that is really significant. A firm that has not yet reached maturity sells commodities generally below its cost in the hope of making good the loss later on. The firms that have reached their old age have often to sell below cost because they cannot readily and with ease transfer their resources into other occupations. It is for this reason that the cost of the representative firm comes to determine the price.

Q 26 What is the meaning of the supply price of a firm or industry? Has it any relation to the cost of production?

The supply price of a firm, and what is true of a firm is also true of an industry, denotes the price at which the sellers are willing to sell their output. As a matter of fact there is not one supply price, it differs with the amount to be disposed of, or demanded. Generally, a higher supply price is associated with a larger demand. When, on the other hand, the demand falls the producers have to lower their selling price, that is, the supply price that becomes effective. Just as there is a definite demand price for a given amount that is offered for sale, similarly, there is a definite supply price for a given amount that is demanded by purchasers.

The supply price, in the long run, equals the cost of production. For, if the cost of production is not covered by it the producers cannot afford to continue to produce the commodity for the market, so that in course of time the output must shrink. The less efficient units of production would be given up. The shrinkage of supply would, therefore, raise the demand price to a level with a fairly remunerative supply price. Similarly, if the supply price be above the cost of production such that the sale of commodity would yield a surplus profit, it would lead to an increase in the output. For, to take full advantage of this surplus the old producers would turn out a larger output and the new ones would further add to the aggregate supply. Such an inflation of the supply would bring the demand price down to a level with cost of production.

In the long run, therefore, the supply price must be equal to the average cost of production. A word may be said here about the cost of production. The cost of production that we have referred to includes payments that are legitimately due to all the agents of production, i.e., it includes wages for labour, interest on capital, rent for land, salaries of organisers and insurance against risk. In other words, it is the real cost of production and not mere expenses of production, it includes what is sometimes called normal profit (Normal profit is understood in the sense of the remuneration of the entrepreneur that does not include surplus profit.)

Though the normal supply price must equal the average cost of production the subnormal supply price may differ widely from it. In the short period, the supply being fixed, the supply price fluctuates with the intensity of the demand and thus equals the demand price.

In the foregoing discussion the expression supply price has been used in the sense of the price at which the sellers or producers willingly sell their goods. However,

When supply price refers to the least price at which producers would be willing to dispose of their output

Q 27 How is the price of a commodity determined in a market on a particular day? Assume that the supply is not increasable

While studying the theory of value we say that the value of a commodity depends on marginal utility on the one hand and marginal cost of production on the other. Price, being value of terms of money, is, therefore, similarly determined. And in the case of unincreasable supply it is governed by the same principles as those that govern the determination of the value of a non-reproducible commodity.

What is true of normal or long period price is true to a certain extent of the price on a particular day. The difference between the two is due to the fact that we are living in a dynamic world where all the factors on which price depends are constantly changing. If it were possible at once to make the necessary adjustments, consequent upon any change in economic data, the price would not fluctuate from day to day and would always be equal to the theoretical normal price. But it is difficult to make such adjustments in time and the impossibility of increasing the supply is one of the instances of such a difficulty.

If the supply is such as can never be increased, the stock is absolutely limited and the price is determined by the urgency or intensity of demand—the forces on the supply side being rendered inoperative. In such a case, the price would be higher if the demand was great and lower if it was smaller. The price would then be determined strictly by monopolistic considerations. The sellers would charge the highest price consistent with maximum income. A part of the stock of the commodity might even be destroyed or held back from the purchasers in order to raise the marginal demand price.

Here it is necessary to distinguish perishable from non-perishable commodities. In the case of the former (such as ice, fish, etc.) the consideration of future demand does not arise and consequently, the price is determined by the strength of the present demand. But when a commodity is not perishable (such as, metal goods, cloths, etc.) the price on a particular day is considerably affected by the sellers' estimate of the future demand. If they expect a strengthening of the demand they would be less eager to dispose of the stock on that very day.

However, in all this discussion it was assumed that the stock of the commodity cannot at all be increased. If the commodity is reproducible so that its supply cannot be increased only on that particular day, then the consideration of future supply along with that of future demand would considerably affect the price of the commodity. For, then, the holding back of the stock would become less advantageous and the sellers' interest would lie in disposing of as much of the stock as possible.

In summing up, we may say that the day to day price is governed predominantly by the demand side and if the commodity is perishable then by only the present demand. The greater the difficulty of increasing the supply the smaller is the influence of the supply side on the price of the commodity.

Q 28 What is market price? Show how it differs from normal price.

By market price we mean the price at which exchanges are actually effected in a market. It is actual price that prevails on any particular day or at any particular moment. It is determined like any value by the interaction of the forces of demand and supply. Any sudden change in the demand or any sudden change in the supply of a commodity is bound to affect the price that rules on any particular day. But generally speaking, sudden changes are more likely to

occur on the demand side than on the supply and for this reason day to day fluctuations in the (market) price are mostly caused by variations of demand. The supply is a less oscillating factor and may be considered as fixed during a short period of time. Hence, it is said that market price is influenced more by marginal utility than by cost of production.

The normal price of a commodity is not real in the sense in which the market price is. It is the theoretical level towards which the market prices tend. It is a kind of an average of market prices. Whenever sudden changes on the demand side disturb the price the slow working influence of cost of production again tends to bring it to the normal level. In the absence of changes in economic factors, the actual market price would always be equal to the normal price. Thus, Prof Marshall says, "The normal or natural value of a commodity is that which economic forces tend to bring about if the general conditions of life were stationary for a run of time long enough to enable them to work out their full effect."

The normal price is, therefore, not a reality in the sense that it may never coincide with the market price. Prof Ely says, "The forces that tend to bring market price into line with normal price not only are slow to operate but hardly ever work with nice precision. Market prices are constantly changing under the influence of short-time forces that affect the supply and demand of the moment."

In conclusion we may say that market price that rules on any day. It may be normal price or the cost of production. Day fluctuations on the demand side may be in line with both of them. But the slow working of the supply side always tends to raise the price again to the normal level.

Q 29 What do you understand by short-period and long-period normal prices? What are the elements that enter into the determination of each of them?

The word normal suggests that which is usual and expected and, therefore, in a sense what is natural. Hence, it differs from what may be termed abnormal or subnormal or un-natural. A normal price thus has a reference to a period of time. It would not be very meaningful to talk of the normal price at a moment of time. What is normal is so with reference to or during a period of time. It is the price which is the result of due influence of the relevant forces that act during a period of time. In economics, therefore, normal price has come to mean the price towards which the day to day prices tend. Temporary forces may influence the price on any day but still there is a level which the price of a commodity always tends to reach. This is normal price. We have seen already that this normal price equals the cost of production and the marginal utility. In other words, it is determined by the forces of demand and supply when they have had time to work out their effects.

A long period normal price is one that is normal with respect to the forces that enter into the consideration of a long period. It is determined by those forces on the demand and supply sides which take a long time to exert their influence.

A short period normal price is one that is normal with respect to the forces that enter into the consideration of a short period. It is determined by those forces on the demand and supply sides which take a short time to exert their influence.

In the long period the price is determined, as we have just observed, by the interplay of all the forces, for it is only in the short period that some forces may not be able to exert their influence. The forces on the supply side are

such as cannot quickly make themselves felt. In the long period, when all forces have time to work out their influence, the normal price equals the marginal cost of production. In the short period some forces on the supply side are not able to influence the price. For example, in a short period the supply cannot be increased or reduced most profitably. An increase of supply in a short period is brought about by working available factors over-time—employing the same labourers for longer time, or using the same machines continuously. Given sufficient time, however, the supply of these factors can be judiciously increased to turn out a larger output.

Hence, in a short period, the normal price differs from the long period normal price. Whenever demand changes the supply has to change also, but in a short period only certain factors on the supply side can be changed. For example, when the demand falls it is not possible all at once to reduce the amount of certain factors employed in production. It is not possible, perhaps not even advisable, to reduce the superior staff, or to sell off some fixed capital or reduce the area of land in use. The only way to reduce the supply would be to employ fewer workers or to make them work for shorter hours and to use a smaller quantity of raw materials. All those elements of cost which are not fixed can be reduced to meet the situation created by the fall of demand. All those elements of cost which are variable, therefore, go to determine the normal price in a short period. These elements constitute what is called prime cost. In a short period, therefore, the producer must get at least the prime cost of production. In the long period he must get his total cost. In a short period prime costs set the lowest limit, in the long period the total cost (prime and supplementary) sets the lowest, as well as the highest limit.

Q 30 How is the price of a commodity determined in short and the long periods? Explain briefly.

The answer to this question will be found in those to questions No 28 and No, 29 as also in those to questions on value. However, this question can be answered briefly as follows

In the long period the price of a commodity is affected by all the forces on the supply and demand sides and therefore, it tends to equal, on the one hand, the marginal utility of the commodity and, on the other, the marginal cost of production. The former of the two is the force that the demand side exerts, the latter the force that the supply side exerts. The buyer must get for the price he pays marginal utility at least equal to it, whereas the seller must get a price that covers his marginal cost of production. When the price is below the marginal utility the demand increases, when it is above it the demand decreases. Similarly, when the price is above the marginal cost the supply increases, when it is below it the supply decreases. These adjustments in the supply and demand constantly tend to bring the price to a level with marginal utility and the marginal cost. This level is called long period price and, is, therefore, determined by all the forces and supply and demand sides.

In the short period the price may be above or below this long period price on account of the fact that changes on the demand side cannot, in a short period, be met by compensatory changes on the supply side. Though even in a short period the supply is elastic to a certain extent and can be increased or decreased in response to similar changes in the demand, it is not possible to make most profitable changes on the supply side. It is, for instance, not possible at once to decrease the supply of fixed capital or of higher staff of organisers or even of land or buildings. Such changes, called for though they are by the shrinkage of demand, cannot be effected in a short period. Hence the short period price is determined by such changes in the supply as do not require a long time to make.

Q 31 Show that the normal price of a commodity in a market where competition prevails, is determined by the forces of supply and demand, i.e., by the marginal utility and the cost of production

The normal price is the price that rules in the long run. This price may be called equilibrium price. It must, therefore, be one that is neither too low for buyers nor too high for sellers. It cannot be too high for sellers because, if there is competition, such a price would attract new producers in the industry or set each existing producer to increase his output. Increased supply would then reduce the price and such increases of supply would continue till the price was lowered sufficiently.

The question is, to what extent should the price be lowered so that there may not be any further impetus for the increase of supply? The price that is "too high" is one that leaves the seller with a surplus profit or a surplus above cost (cost including the true economic profit). Hence, as long as the price continues to be above the total cost the impetus to increase the supply must exist. When the supply has increased sufficiently to lower the price to the cost level the impetus to the increase of supply disappears. Thus, the price which brings the supply to a position of stability is one that equals the cost of production. But when there is competition this cost of production must be the marginal cost of production and not any other cost. For, since the cost goes on increasing with the supply the seller must recover not only what the first unit of output costs him but what even the last unit does. If the price does not equal the marginal cost of production the last unit would not be produced. Hence, when we argue that the price must at least equal the cost of production we mean really that it must equal the marginal cost and, when there is competition, it cannot be above it.

Forces on the supply side, therefore, go to determine the price and fix it, under competition, at a level with the marginal cost of production.

But it is not only the supply side that plays a part in the determination of price. The forces on the demand side also exert their influence. For, just as it is essential that the price must cover the producer's marginal cost, so, also it is necessary that it must not exceed the marginal utility of the commodity to the buyer. The buyer exchanges his money for the commodity and he cannot do so if the commodity gives him less utility than the price he pays for it. The price, in other words, cannot exceed the utility. When many units are purchased the utility of every unit has to be at least equal to the price. The utility of the last unit is marginal and the lowest. The price cannot exceed even this utility. Hence, the price cannot be greater than the marginal utility of the commodity. But when there is competition it cannot be lower than it either. For, when the price is lower the demand increases by the coming into the market of new buyers or by the decision on the part of old buyers to increase their consumption. Thus, increased demand raises the price till it is brought into level with the marginal utility of the commodity.

This is the manner in which the demand side exerts its influence in determining the price and fixing it, ultimately, at a level with the marginal utility of the commodity.

Hence in the position of equilibrium the price comes to equal both the marginal cost of production and the marginal utility.

Q. 32 Discuss the statement that "the influence of utility on value preponderates during short periods, but that of cost of production in the long run" (Marshall)

This question has already been answered incidently, in the course of our answers to the previous questions. However, it can be answered directly as follows :

The price of a commodity must ultimately be influenced by all the forces on the supply and the demand sides.

That is, any factor that changes the supply or the demand must also change the price. Whether the supply or the demand side has a greater influence on the price depends on the whole on the fact whether the one or the other is more easily variable. The only way in which supply or demand can affect the price is by changing itself. If the price is above the marginal cost of production it can fall only when supply is increased and if it is below the marginal cost of production it cannot rise till the supply is diminished. The same argument applies to demand. Whether, therefore, the demand or the supply side has a preponderant influence on price depends upon which of the two is more variable. In a short period, the demand can easily be increased or decreased to suit the price. When the price is greater than the marginal utility the demand readily shrinks, when it is below the marginal utility it readily increases. But in a short period the supply cannot be adequately increased or decreased. It is less variable or flexible. For this reason it is maintained that the price of a commodity, in a short period, is influenced by marginal utility more than by cost of production.

In the long period, since the supply can be increased or decreased, the price of a commodity is influenced also by the supply. Since the producer must recover his cost and since competition would not allow him to recover any amount in excess of it, it is the cost of production that has an influence on the price of a commodity.

Q 33 *"The price of a commodity, in the long run, is determined by its cost of production." Show how this statement is consistent with the theory that price is determined by the forces of demand and supply*

In the long run the price of a commodity is determined by its cost of production. We have already shown in previous answers that the normal price equals both the cost of production and the marginal utility, that is, it is determined by the forces both of supply and demand. Now,

if the price is determined by supply as well as demand how can it equal the cost of production or how can it be maintained that it is determined by the cost of production?

Had the cost of production been a fixed cost and had the marginal utility also been invariable the problem would certainly have been difficult. For, in that case if the cost of production was to determine the price it would not be determined also by marginal utility. A thing cannot equal two other things when they are not equal to each other. But in reality the cost of production is different for different amounts produced and so is also the marginal utility.

With every increase of output beyond a certain limit the marginal cost of production increases. And with every addition to the stock offered for sale the marginal utility decreases. It is possible, therefore, for the cost and the marginal utility to be equal to each other for some definite amount of output.

The marginal utility is greater than the cost of production when the output is comparatively small, and that induces the producers to increase their output. But with the increase of output, the cost rises and the marginal utility falls. The gap between them, therefore, gets narrowed and every increase of output narrows it further. A time comes when the output increases sufficiently to bring the marginal utility down and raise the cost up to make them equal to each other. Thus when the position of equilibrium is reached the price equals the cost of production as well as the marginal utility. In other words, the forces on the supply and demand sides operate to fix the price at that cost of production which equals the marginal utility of the amount of output.

The cost of production is the lower limit to the price in the sense that the producers would not sell their stock for a lower price. The marginal utility is the upper limit to the price for the buyers would not pay a price that exceeds

the marginal utility. These limits are effective when there is competition both among the sellers and among the buyers. In the short period, the price may be anywhere between these limits—tending, of course, to the upper of the two limits in a very short period. But in the long run, as explained above, the two limits approach each other and finally coincide. In the long run, therefore, though the price is determined by the cost of production it is nevertheless worked out by the forces of supply and demand.

Q 34 Show that the price of a commodity is determined by marginal cost of production when it equals also the average cost of production

The subnormal price of a commodity can be anywhere between the marginal utility and the marginal cost of production—tending, of course, to equal the marginal utility in the very short period. In the long run, the price, that is, the normal price, equals the marginal cost of production. But since it can never be above the marginal utility or below the marginal cost of production, when there is competition, it tends, in the long run, to equal both these limits. In the long run, the price is, therefore, equal to marginal cost of production (where it equals the marginal utility of the amount of output).

When the industry operates under the law of diminishing returns, i.e., increasing costs (and it does so operate when competition prevails and the demand is not too low) the marginal cost is higher than the initial cost. Hence, it would seem that when the output is sold at the price that equals the marginal cost of production the producer makes a surplus profit on every unit except the last. This, however, is not correct. All the units except the last do not cost less. The first few units of the output always cost less than the average unit. This is due to the fact that every industry obeys first the law of increasing returns and then that of diminishing returns. Hence, when

the price equals the marginal cost it is certain that every unit does not yield a surplus. The question still remains open whether on the whole the producer earns a surplus or not. For though the price is higher than the cost of some of the last units it is lower than that of some initial units.

It is arguable that if the producer makes a surplus profit on the whole, the industry to which he belongs becomes attractive. The resources must then flow to that industry from other industries where conditions are less favourable. That is labour and capital would shift to this more profitable industry to earn this surplus profit. But by so doing they would increase the supply in the profitable industry and reduce it in others. As a result of such a change the price would be lowered in the former and raised in the latter industries. Hence, the margin of profit in the favourably placed industry would shrink and other industries would improve in position. In the position of equilibrium, therefore, the position of all industries would become equal, that is, no industry would earn any extra profit. It cannot be maintained that when all industries are equally well off each of them could be earning some surplus profit. For, one can conceive of a surplus only as a surplus above what the entrepreneurs can earn in other occupations and industries. When all industries are equally well off such a surplus does not exist.

We therefore see that though the price equals the marginal cost of production it is still one that secures for the producer no surplus above cost. (Cost always includes the remunerations of all the factors of production including enterprise). In such a case then the selling price must be equal to the average cost of production for it is only then that it can be said to leave no surplus for the producer.

Q 35 Under conditions of competition we can only consider the case of diminishing returns. Explain and discuss this statement.

Producers can compete only when their costs are equal or to be more exact a producer ~~can compete with another~~ when his cost is not higher. In the case of constant returns all the producers would have the same cost irrespective of the amount produced. But the more efficient producer would have lower constant costs than the less efficient ones. It is not possible for all the producers to be equally efficient, so that their constant costs of production must be unequal. In such a case then the most efficient producer having the lowest cost of production is able to meet the entire demand. Other producers having higher costs cannot compete with him and, therefore, under conditions of competition we cannot think of constant returns.

In the case of increasing returns the cost of every producer goes on falling with the increase of output. The more they produce the lower is their cost. It is not likely here also for the producers to be equally efficient. Hence, the costs of different producers are bound to be different for any given output. The entire market demand can be satisfied by a single producer—the one with the lowest cost. No other producer can offer competition because their costs are higher for any amount less than the entire demand. When the market demand increases the most efficient producer can meet it again, for, by producing more, he not only does not raise his cost but actually lowers it. Thus we see in the case of increasing returns there is no possibility of competition between producers.

In the case of diminishing returns the cost increases. Every producer finds that when the output increases beyond a certain point the cost rises. When the demand is very low the most efficient producer is able to satisfy it completely. But when it increases and the supply has also to be increased the most efficient producer can do so only at a higher cost. But at that higher cost other producers are able to turn out a small amount. In other words,

those who are less efficient can now compete with the more efficient on account of the fact that the latter's cost has gone up. With every increase of the supply to meet the growing demand the cost rises and thus the less efficient producers are enabled to offer competition. Hence, when returns are diminishing there is a possibility of competition. We can consider only the case of diminishing returns.

Q 36 What is elasticity of supply and on what factors does it depend ?

By elasticity of supply we mean the ability of the supply offered to change with changes in the price. Generally, the quantity offered for sale increases with a rise of price and decreases with a fall of price. The greater the rise in price the greater is the increase in the supply and conversely, the greater the fall in price the greater is the decrease in supply, other things, of course, remaining the same.

The supply of all commodities are not equally elastic nor is the supply of a commodity under all conditions of time and production equally elastic. The elasticity of supply can be judged by the extent to which the supply offered responds to an increase in demand. Since the supply of a commodity increases till the marginal cost equals the demand price we have only to observe the rate at which marginal cost increases or decreases when the production is increased to judge the elasticity of supply. When marginal cost increases rapidly the elasticity is low, when it increases slowly the elasticity is great. For, when the marginal cost increases rapidly it catches up the risen demand price quickly, that is, by only a small increase of supply. But when the marginal cost increases slowly it takes time to come up to the level of demand price, so that the supply in the meantime increases to a considerable extent.

In the case of increasing returns the marginal cost decreases with the increase of production. The more rapidly it

decreases the greater is the elasticity and the less rapidly it decreases the lower is the elasticity. For, when the marginal cost decreases less rapidly the demand price catches it up more quickly than otherwise. But as under conditions of competition we are concerned only with the case of diminishing returns, (See answer No. 35) cases of increasing returns need not be taken up for detailed study.

We have, therefore, the theorem that the more rapidly the marginal cost increases the lower is the elasticity of supply. We have to determine, therefore, the conditions under which the marginal cost increases more rapidly and those under which it increases less rapidly.

The marginal cost increases more rapidly when internal and external dis-economies of production are greater. The greater the difficulty of increasing the supply of factors needed to produce a commodity the greater are the chances of more rapid increase of cost. The more narrowly limited the quantities of necessary factors the greater is the difficulty of increasing the output and consequently, the more rapid is the increase of marginal cost and less elastic is the supply.

The elasticity in the long run is, therefore, greater when the scarcity of factors is less.

In the short period, however, the supply can increase only by the importation of the commodity from foreign markets, i.e., from all markets other than the one under consideration. A given rise of price will greatly increase the supply in this manner when there are plentiful and abundant sources of supply of the commodity in foreign markets. The Bengal jute has low elasticity of supply because there are no other abundant sources of supply outside Bengal. But even when there are foreign sources of supply the supply may not actually increase if there are hindrances in the way of the movement of the commodity. Hence, the greater the mobility of the commodity the greater is the elasticity of supply.

In the short period the supply also depends upon the willingness of the sellers to dispose of the stock. The sellers' decision is influenced by their expectation of the price in the future. If they expect the price to rise still more in the future they will be less disposed to sell off their stock. The supply is, therefore, more elastic the greater the fall of price or smaller the rise of price that is expected in the future.

Q. 37 How is the price of a commodity affected in the short and long periods by the following Eq influences?

- (1) an unexpected supply from a foreign market,*
- (2) cost-lowering inventions, and*
- (3) the discovery of a new use for the commodity*

(1) An unexpected supply from a foreign market will, by inflating the stock of the commodity, cause the price to fall. Whether the price falls considerably or slightly will depend on a variety of factors. A great addition to the supply and an inelastic demand will cause a great fall in the price. Again the price will fall more if the commodity is perishable and the foreign supply is expected to be a more or less permanent feature of the market. These are the effects on the price in the short period. In the long period, however, the price may or may not be affected though the latter case is very unlikely. The short period fall of price must have its inevitable effect on the supply. Either the home or the foreign supply must be reduced if the price has to come up to the cost level. Whether the reduction takes place in the home or the foreign supply depends upon which is more sensitive to the fall in the price. If the foreign producers are more efficient and, consequently, their cost is lower, they will be better able to stand the strain of the fall of price, so that it is mainly the home supply that will, in such a case, be restricted. In any case, in the long run, the supply is bound to be reduced and the price thereby raised again. The extent of the rise of price will depend upon the elasticity of supply. The more elastic the supply the greater will be the rise of price. It is very unlikely

for the price to rise to its former level. It can do so only if prior to foreign competition the home producers had been enjoying monopolistic powers and the former price was, consequently, above the marginal cost of production. In such a case the injection of foreign supply would serve to break the monopolistic power of the home producers.

(2) Cost lowering inventions will increase the supply and thus bring down the price. The extent to which the price will fall will depend on the nature of the invention and the elasticity of demand. The more elastic the demand the smaller will be the effect on the price. In the short period, the price is likely to fall either more or less than it would eventually do when the new position of equilibrium is reached again.

The immediate effect of an invention may be either that the producers who adopt it increase their production till the new marginal cost comes up to level of the market price, or that they continue to produce the usual amount at a lower cost and sell their output at the market price and thus make an extra profit. If the producers adopt the latter course the price will not fall or if it does, it will fall slightly. In the long run, however, competition among the producers must cause an increase of output and thereby bring down the price to the new equilibrium level. If, however, the producers adopt the former course and at once increase their output the immediate effect on the price would be very much depressing. In the long run, then, the supply is likely to fall if the producers, who cannot adapt their plant to the new methods of production, decide to close down their works.

(3) The discovery of a new use for the commodity merely increases the demand and, therefore, raises the price. In the short period the effect on the price would be very much pronounced on account of the inelasticity of the supply. But in the long period, as the supply is adjusted to the new demand, the price will fall again though it will not reach its

former level. The extent to which the price will eventually rise depends on the elasticities of demand and supply. The more elastic the supply the smaller will be the rise in price and the more elastic the demand the greater will be the rise in price.

Q 38 What do you understand by prime and supplementary costs? Which of these is more important in the short period?

By prime cost we mean that part of the cost of production which is variable in the short period. Supplementary cost comprises of all those elements of cost which are fixed in the short period and can be varied only in the long period. Thus, short period variations can take place in such items of cost as wages of ordinary labourers, price of raw materials, etc. These expenses make up, therefore, the prime cost of a firm. On the other hand, there are expenses which cannot be curtailed in the short period, for example, the salaries of superior staff, rent of land, interest on fixed capital, etc. These elements of cost are not variable in the short period.

As the prime cost is variable in the short period it is more important for the short period determination of the price. The prime and supplementary costs taken together determine the normal or the long period price. In the short period, since supplementary cost is fixed, the producer cannot decrease it by reducing his output. When the demand falls, for instance, and the price goes down the producer has to reduce his output in order to raise the price again. But when he reduces his output the supplementary cost remains the same, it is only the prime cost that is more or less correspondingly reduced. The extent to which he reduces his output depends on the rate at which his prime cost falls. He must at least recover his prime cost, if he does not he will decrease his output still further.

Thus, in the short period the lowest limit to the price is set by the prime cost. In the long period the lowest limit is prescribed by the (marginal) aggregate cost.

Q 39 What are the elements that enter into the cost of production of a commodity? Does profit interpreted in its true economic sense, constitute an element of cost?

The cost of production is made of the earnings of the various agents of production, namely, the labourers, landlords, capitalists, organisers and enterprisers. These earnings are known as wages, rent, interest, salaries and insurance charges. This is a broad classification of the cost of production of a commodity which, however, is made up of a large number of small charges. Thus, wages may include payments to skilled workers, payment to transporters and payments to casual workers. The item of capital cost includes interest on pure capital, price of raw materials, pure depreciation or obsolescence of fixed capital, etc.

The cost of production is composed of those payments which are necessary for the production of a commodity. Every function of production, i.e., services which are essential for the production of a commodity, must be adequately remunerated in order to ensure a regular supply of the commodity. The payments made to agents of production for these functions constitute the cost of production.

In this cost of production, therefore, profit does not enter. For, in the true economic sense, profit is not a regular payment made to any essential factor of production. It is a pure accidental gain. Production would not suffer in any way if an industry or industries in general did not make such an accidental profit. Profit and its counterpart loss are accidental. They arise because men cannot foresee the future accurately and therefore cannot gauge the strength of future demand or the prices of various factors of production. When calculations turn out to be too optimistic they cause losses to appear in the business. On the other hand, when estimates are too conservative they cause profits to appear in the industry.

It is sometimes believed that "normal profit" enters into the cost of production of a commodity. But such a view is based on an erroneous conception of the function of enterprise. An entrepreneur is one who takes risks. Risks are due to fluctuations in economic phenomena. But if these fluctuations could be perfectly foreseen there would be no risk in any industry. But since we are living in a dynamic world where it is not possible for entrepreneurs to foresee all variations with perfect accuracy, the work of the risk-taker becomes really risky. He may get what his services as a capitalist or an organiser are worth or he may get more or less. To compensate him for this sort of risk our productive system allows him a part of the total wealth produced. This goes by the name of insurance charge, though properly speaking it is not exactly of the nature of insurance premium. This charge certainly enters into the cost of production, but it is not profit, in its true economic sense. Profit is a true surplus over cost, and therefore, cannot be a part of it.

Q 40 What do you understand by the following terms?

(a) Joint demand and joint supply.

(b) Composite demand and composite supply

Show how the changes in the price of a commodity affect the prices of joint supply and joint demand

When two or more commodities are jointly needed to satisfy a simple or complex want they are said to have a joint demand. In such cases the use of one commodity is necessarily accompanied by the use of another commodity or group of commodities. A motor car and petrol, fountain pens and ink, and bricks and mortar are examples of commodities that have, within limits, joint demand.

When the supply of one commodity is necessarily accompanied by that of another they are said to have a joint-

supply when they are necessarily produced together. Thus, the production of silver and the production of nickel go together. The production of wheat is accompanied by the production of chaff. When we produce one such commodity we also produce the other.

A commodity generally has many uses and it is wanted by many people for all these uses. The aggregate demand for it of all consumers for all these uses is called the composite demand for that commodity. Thus, the composite demand for salt is made up of the demand for it for cooking purposes, preserving purposes and for other industrial uses.

Almost every commodity has more than one source of supply. It is produced in various markets, various places in a country and various countries of the world. The composite supply of a commodity is the aggregate supply of it from all these sources. The more durable and transportable a commodity, other things being the same, the greater are the sources of supply for any market, and larger, therefore, is the composite supply. Thus, coal is produced in C.P. and Bengal in India and the supply from these sources make up the composite supply.

When the price of a commodity changes it affects the price of the commodity which is jointly produced with it. If the price rises in response to increased demand, its supply increases. As a consequence of this the supply of the jointly produced commodity also increases, and the demand for it being the same as before, its price falls. If, however, the price of a commodity rises due to a higher cost of production the demand for it falls and, consequently the supply is reduced. This reduction is necessarily accompanied by the decreased production and supply of the jointly produced commodity, and the demand for it being the same as before, price rises.

When the price of a commodity changes it affects a change in the price of the jointly demanded commodity. When the price rises on account of increased demand, utility price of the jointly demanded commodity also rises, because the demand for it also necessarily increases. But when the rise of price is caused by forces on the supply side, i.e., the higher cost of production, or restriction of supply, the price of the jointly demanded commodity falls because the demand for it also has to fall with the fall in the demand for the other commodity.

CHAPTER V

THE THEORY OF MONOPOLY PRICE.

Q 41 What is a monopoly and what are its distinguishing features?

Monopoly, signifies the existence of one seller but the word is now used to describe all those cases in which there is no competition on the supply side. Hence, there is said to be a monopoly when there is either a single person that controls the entire stock of a commodity or a group of producers between whom, for some reason or other, there happens to be no competition.

Thus, the distinguishing feature of a monopoly consists in the absence of competition among sellers (there may also be a monopoly on the demand side). As a result of the absence of competition, the supply comes to be restricted in such a way as to raise the price to the most profitable level. A monopolist is, therefore, a person who is able to control the

market supply and thus influence the price. He is able to charge a price that is above the marginal cost of production. This price, called the monopoly price, secures for him the maximum net income.

Q 42 Monopoly and co-operation are both antagonistic to competition and yet they are not one and the same. Explain

In monopoly as well as in co-operation there is no competition. Co-operation is directly antagonistic to competition. Similarly, monopoly is impossible when there is competition among producers. Complete absence of competition creates a perfect monopoly.

When a number of persons have the same want they can satisfy it acting individually or co-operatively. In the first case they are said to compete, in the second to co-operate. In competition the aim of each is to maximise his own gain and thus the actions of the members come into conflict with one another. In co-operation the aim of all is to maximise the common or collective gain. In the case of a monopoly also the principle of action is to maximise the total gain of the members that constitute a monopoly.

The difference between monopoly and co-operation, however, consists in the fact that where as co-operation implies necessarily more persons with similar wants, monopoly does not. There may be one individual monopolist but there must be several persons to give rise to the conception of co-operation.

Another possible difference consists in the aim and object of the organisation. A monopolist's one aim is to maximise its net income by raising the price to an appropriate level. Co-operation may have this aim, but its object generally is of a more technical nature. Co-operators may co-operate to increase their productive efficiency.

It is for this reason that public opinion is so hostile to monopoly, but seldom does the public look upon a co-operative movement with feelings of apathy.

Q 43 What are the various types of monopolies? Which of them do you think is the least prejudicial to social interest?

Monopolies are broadly divisible into two classes, viz, open-field and closed-field monopolies. (This classification is the author's own and is explained fully in his *Ground work of Economics*) In the former type there exists no legal prohibition against the production of a commodity or the performance of a service—the monopoly being due to some favourable position with regard to cost of production enjoyed by a producer. In the second type, the field for competition is restricted or entrance into it is altogether closed by legal protection granted to some one or more producers. This classification is based on the cause of the absence of competition.

Monopolies can also be classified into natural, social, legal and voluntary. This classification suggests that monopoly right may be due to natural limitation of sources, social conditions, legal enactments or voluntary combinations. Thus, it cuts across the previous classification and is not on an entirely different plane.

Again, we may divide monopolies according to the area over which they extend and thus get a classification into local, national and international. In this case the most important factor determining the extent of a monopoly is the cost of transport.

Lastly, monopolies may be divided into private, public and quasi-public. In the first case the monopolist is a private individual, in the second, the State is in the position of a monopolist, while in the third, though the State owns

the monopolistic concern the management is left in the hands of a private company

Of all these monopolies the least harmful is that which either raises the price the least or makes the monopoly revenue available to society. Both these features, one is likely to find mostly in the case of public monopolies. For, in the first place, the State is not likely to charge a very high price and in the second place, the profit earned by it is likely to be used in the best interest of the people.

Q 44 How is monopoly price determined? How and why are the price determining factors different in the case of monopoly and competition?

The difference between monopoly and competitive production is that whereas the monopolist has a control over the supply, a producer under competitive system has no such control. As a result of this difference the monopolist is able to influence the market price by producing less or more. A competing producer, on the other hand, may produce less or more but he cannot by so doing influence the market price. Every producer has one aim in regulating his output, namely, to maximise his net income. The monopolist does so by altering all those factors on which he has a control. Thus he reduces or lowers his cost by changing his output, and he also regulates the price by increasing or decreasing his production. He controls two factors—his cost and the selling price. He so regulates his output as to maximise his net income. Every increase in the output (beyond a certain point) raises his cost and thus reduces the profit he makes on each unit sold. Moreover, such an increase lowers the market (demand) price as well. But what he loses on account of lower price and higher cost he makes up, partly or wholly (or may more than make up) by the sale of a larger output. By experimenting he can determine the most profitable level of output.

A producer under a competitive system has the liberty to produce more or less and thus change his cost of production, but such an act on his part has no influence on the price (demand price), for, he, by hypothesis, has no influence on the supply. He produces such a small percentage of the total supply that variations in his output do not materially alter the market supply. He is therefore, able to exercise his decision and determine the amount that he will produce and sell and thus the cost that he will incur. But the price is fixed for him by market conditions. The more he produces the higher is his cost, but the loss thus incurred he makes up by selling a larger amount.

Thus, in the case of monopoly output, cost and price are variable factors, but in the case of competitive production for any particular producer, only the output and cost are variable, the price is fixed. On account of this difference the point of most profitable output in the case of competition is that at which the marginal cost of production, just equals the price. In the case of monopoly, the most profitable output is that which makes the net income maximum, that is, which maximises the product of quantity produced and the profit or gain made on each unit. The monopoly price, in other words, is not equal to the marginal cost of production because there is no competition on the supply side, but it is equal to it in the case of competition.

Output	Cost per unit	Price	Gain per unit	Aggregate net gain
	Rs.	Rs	Rs	Rs
100	5	10	5	500
200	4	9	5	1,000
300	3	8	5	1,500
400	3½	7½	4	1,600
500	4	7	3	1,500
600	5	6	1	600
700	9	5	—1	—700

In the above table the most profitable output is 400 units for that maximises the net gain. We see that the selling price is Rs. 7½, being Rs. 4, above the average cost.

Q 45. What is a discriminating monopoly? In what way can a monopolist practise price discrimination?

A discriminating monopoly is said to exist when a monopolist charges different prices for the same commodity or service to different persons or to the same persons for different uses or at different times. The absence of discrimination, therefore, consists in the more or less simultaneous existence of two or more levels of price for the same commodity or service.

A monopolist can practise discrimination as between persons belonging to different income groups, or demanding the service or commodity for different uses, or as between different markets or times of use.

A private monopolist practises discrimination in order to increase his monopoly revenue. The principle on which discrimination is based is to charge as high a price from each person, from each market, for each use or at each time as the monopolist can profitably charge. This he can do only when, by one device or another, he is able to render the shift of demand from one discriminated unit to another impossible. When he succeeds in doing so and is consequently able to charge from different units different prices, what he actually does is to exploit the consumers' surplus. Instead of charging the price that is marginal (or lowest) for the whole group or all markets he charges prices some of which are above that margin.

In certain cases the monopolist may find it advantageous to charge a slightly lower price in one market than what would be most profitable to charge. This is due to the fact that he

is interested in the aggregate net income from all markets and does not care whether each market yields him the maximum possible income.

Price discrimination is always resented by the public and in certain cases it is socially undesirable also. It is difficult for this reason for a monopolist to practise discrimination openly. Discrimination between persons of different incomes can be secretly practised by giving different names or different appearances to commodities that are really the same in quality. Thus, wines, liquors, chocolates, etc., of the same quality are often placed in the market with different labels or packings and priced differently.

Different prices are generally charged for different uses. Thus, electric companies sell their supply for lighting purposes to private consumers and for power purposes to manufacturers at different rates.

Again, gas companies charge different prices in different seasons. Railway companies vary their rates according to the nature of commodities transported.

In the case of a public (State) monopoly the object of discrimination is not generally to increase the profit. There the benefit and convenience of the consumers are the principal motives.

Q 46 Are the price determining factors fundamentally different in the case of a discriminating monopoly? What is the object of a monopolist in practising discrimination?

The price determining factors are not fundamentally different in the case of a discriminating monopoly. The object of every producer is to maximise his net income. A monopolist, therefore, adjusts his supply to demand in such a way as to maximise his monopoly revenue. The price that yields this maximum monopoly revenue depends on

the elasticities of supply and demand. The object of a monopolist who practises discrimination is also to maximise his monopoly revenue. With this view he adjusts his supply to demand in the case of each market, or each group of buyers. The difference between the two types of monopoly is that whereas in the first there is only one price for all buyers, in the second there are different prices for different buyers. Price discrimination is resorted to wherever possible in order to increase the monopoly revenue. The greater the extent to which price discrimination can be practised the greater is the monopoly revenue. The idea is to charge from each as much as possible. Instead of charging the rich and the poor the same price, a discriminating monopolist charges a higher price to the rich and a lower price to the poor. What is true as between the rich and the poor is also true as between other buying units whose demands are not quite identical. In the case of a discriminating monopoly the consumers' surplus is exploited more fully than in any other case.

In the case of simple monopoly the price depends on the elasticity of supply and the elasticity of aggregate demand, whereas in the case of a discriminating monopoly it depends on the elasticity of demands in the various markets or various groups of buyers.

Q 47 Enumerate and explain the various factors that operate to check the power of a monopolist

A monopolist's power can be judged by the price he is able to charge. He might sometimes charge a price lower than what he could out of considerations for the consumers, but such monopolists must be very rare to find. Whenever, therefore, the price actually charged is lower than the maximum immediately possible, it is because such a price is calculated to yield the maximum profit in the long run.

The factors that check the power of a monopolist may therefore be taken to be those that operate to lower the selling price below the immediately possible maximum.

Among these factors perhaps the most potent is the fear of competition. A price that is moderate may not attract competition but every increase in the price above that level is bound to make the industry an attractive field for competitors. The advent into an industry is governed by the profits made by producers. Hence, in the case of an open-field monopoly potential competition acts as a check to the power of the monopolist.

Another factor exercising a similar check is the fear of consumers' monopoly. A very high price is oppressive to consumers and the monopolist has, therefore, to reckon with the possibility of a combination of consumers. He would therefore be contented with charging a slightly lower price, looking upon the loss thus incurred as an insurance against the combination of buyers.

In certain cases the State comes forward to protect the consumers from the tyranny of a monopoly. A monopolist has, therefore, to be on the good books of the government. To charge a very high price is to invite hostility of the public, and the monopolist who disregards this factor may be said to be pursuing a very short-sighted policy.

Commodities that have substitute, more or less satisfactory, have a comparatively elastic demand and therefore a monopolist is not able to charge a very high price for such classes of commodities. In other words, competition of producers of substitutes becomes effective when the price rises beyond a certain level.

In this connection it may also be noted that more inelastic the demand the higher is the price that a monopolist

can safely charge. What is true of inelastic demand is true also of inelastic supply. For, when the cost increases rapidly with output it pays the monopolist to produce a smaller amount and charge a higher price.

48 When are monopoly prices likely to be much higher than competitive prices?

The answer to this question is contained in the treatment of the last question. However, the conditions under which monopoly price is likely to be very high may briefly be summarised as follows —

(1) The more inelastic the demand (in the vicinity of competitive price) the higher is the monopoly price. The extent to which the monopolist can raise the price depends, partly, on the extent to which the demand shrinks. In the case of a comparatively inelastic demand it does not shrink very much and, consequently, the price can profitably be raised to a higher point than in the case of a more elastic demand.

(2) In the case of diminishing returns, the more inelastic the supply the higher is the monopoly price. For, in the case of an inelastic supply the cost falls considerably when the output is reduced and hence the monopolist has a definite advantage in restricting the output and charging a higher price. In the case of increasing returns the more elastic the supply the higher is the monopoly price, for in that case the more the output is reduced the lower is the cost.

(3) The fewer the chances of competition the higher is the monopoly price. In certain cases competition is legally prohibited or its possibility ruled out by natural conditions of production. In all such cases the monopolist can charge a much higher price than what would otherwise be safe for him to do. The monopolist has to reckon not only with the com-

petition of the same commodity but also with that of substitutes. The less substitutes a commodity has, the higher, other things being the same, is the monopoly price.

(4) Lastly, the greater the possibility of consumers' combination the lower is the monopoly price

Q 49 "Whatever the consumer may suffer at the hand of the monopolist is no worse than what he suffers from the wastes of competition" Discuss

It has been said that consumption is the "end" of production. There is a great truth in this statement which has, however, been somewhat bluntly worded. Every man is both a producer and a consumer. We produce only because we have to consume. Had consumption been possible without production all economic activities that constitute production would have never been undertaken. If production is thus only a means to an end, we need only judge the value of economic institutions by their effect on consumption. Whether competition is socially more desirable or monopoly depends upon which system of production benefits the consumers more. In judging the benefits a system confers on the consumers we have not only to observe the effects immediately produced but to take into account the long period repercussions of the system on the consuming classes.

It is obvious that a competing producer's as well as a monopolist's aim is to benefit himself by getting as much out of the consumers as possible. But in the case of competition he is so situated that he cannot very well benefit himself without benefiting the consumers as well. His own good is, as it were bound up with the good of the buyers. He cannot rob the consumers in the manner in which a monopolist can. He has to rob, rather, the other producers in order to increase his own net income. He fights with his rivals in production as the monopolist, in a slightly different way,

fights with the consumers. A monopolist gains, adopting a loose expression, what the consumers lose, but under competition a producer gains what other producers lose. In competition the price, therefore, falls whereas in monopoly it rises. Judging from these immediate effects competition is more desirable than monopoly, for it benefits the consumers more.

Moreover, the way in which a competing producer can fight with his rivals is not only by lowering the selling price to the minimum possible, but also by actually reducing the cost of production. He is, therefore, constantly striving to devise methods of production that are more economical. Thus, in the pursuit of his own good, he confers a real benefit on the consumers. The impetus thus to lower the cost of production is extremely weak in the case of a monopoly. A monopolist has no other rival to compete with. If he can increase his efficiency so much the better, but there is nothing that forces him to strive to increase it.

But what about the effects, we may be asked, of competition on the producers? We need to take account of these effects only in so far as they have long period repercussions on the welfare of consumers. After all, in a system of competitive production, the interests of the producers and consumers are not antagonistic in the long run. If competition lowers the efficiency of producers, it eventually inflicts a loss on the consumers. If competition ruins some efficient producers it destroys sources from which consumers' interests are fed. If competition necessarily involves heavy costs we must take account of these because they are bound to reflect on the consumers in enhanced prices.

Competition, if it is healthy and not unfair, normal and not ruinous, would not undermine the efficiency of production or annihilate from the field any efficient producer. It does not kill the goose that lays golden eggs. But even

then competition has some features on account of which production becomes costly.

To compete is to advertise and counter-advertise, to compete is to sell goods in one another's territory. A large percentage of the cost on advertisement has no counter-part in social good. The society does not need this expense, but the competing producers have to incur it. It is a necessary waste. Similarly to invade each other's territory is to incur avoidable cost on transport of goods. These are the well known wastes of even normal competition. It means so much less good to consumers. Monopoly has no such wastes to the debit of its account.

There are thus social advantages as well as disadvantages of competition, and it is not possible to say that either competition or monopoly is more beneficial in all cases. Much depends on the nature of the commodity, the conditions of its supply and the elasticity of demand for it. On the whole, however, competition seems to have more points in its favour than against it.

We may conclude this answer with a beautiful passage from Professor Seligman's book "Competition is economic life, therefore, is a potent factor in the growth of capital. Working hand in hand with the principles of private property, it is the chief incentive to progress. Through it we secure the extension of the margin of utilization, the accumulation of the surplus available for human wants. Competition, moreover, is the great safeguard against the high price which accompanies exorbitant profits for it is the automatic force which reduces the gains of the inefficient and makes profits depend on low rather than on high price. It evokes in individuals the fundamental characteristics of energy, thrift, and power and it harmonizes to a large extent the interests of the individual and society by making the success of one depend primarily on what he can accomplish for the other."

Q 50 What is speculation? Explain its various forms and discuss its economic uses and abuses

By speculation is meant all business transactions undertaken in the hope of making profit by anticipated changes in the price. Thus, a person who buys now in the hope of selling at a future date at a higher price is said to speculate. Similarly, the person who sells now expecting that the price will fall in the future is also a speculator.

Speculation is, therefore, necessarily time-speculation, i.e., it is made possible by changes in the price prevailing at different periods of time. Again, in its true economic sense, speculation means selling or buying in anticipation of changes in price that are foreseen. Of course, if everybody could foresee changes with perfect precision all would try to speculate and, therefore, there would be no scope for speculation as such. Speculation thus necessarily involves some taking of risk. The scope for it exists only in the absence of perfect foresight.

All modern business activities are to an extent speculative firstly, because production requires time and people have to buy or sell always on anticipations of future demand and, secondly, because, in this dynamic world, it is not possible for people correctly to foresee changes of all kinds. He who has a better foresight succeeds more than others.

Sometimes the word speculation is used to denote the buying or selling of a thing in one place and selling or buying in another place because its price is different from what prevails at another place. This, however, is not speculation in the true sense of the word.

Speculation may be sporadic or regular. The former results in buying or selling in anticipation of sudden fluctuations in the price due to causes which are short-lived.

Regular speculation consists in the speculative acts of experienced, well-informed and cautious persons who have no intention of deceiving people.

This type of regular speculation may also be called professional speculation, and distinguished from amateur speculation

Speculation may be distinguished from gambling—the former being called economic and the latter uneconomic. To buy or sell, more or less blindly, just in the hope that prices might rise or fall in the future is more akin to gambling than to speculation proper. However, as we have said, speculation itself entails some risk-taking and, therefore, involves some dependence on chance. Hence, speculation differs from gambling in degree only.

Speculation, as thus distinguished from gambling, is socially beneficial. It helps to steady prices by bringing about a better adjustment between demand and supply than would otherwise be possible. He who buys now because he can more or less accurately foresee a rise of price creates a demand in the present and reduces the supply. By coming forward to sell it in the future, he increases the supply then. He thus raises the present price and lowers it in the future. Speculation, thus, tends to reduce fluctuations in the price by transferring the supply to a period in which the demand for it is greater.

Economic speculation is thus beneficial to society. Gambling, as it naturally follows from the above argument, is an evil. It might bring about a greater disparity between supply and demand.

Again, speculation may be practised by unscrupulous persons to increase their profit by foul means. Sometimes, for instance, speculator may spread false reports and by playing upon the ignorance of people and raising or lowering prices beyond the economic level, seek to increase his own gain.

CHAPTER VI

IMPERFECT COMPETITION

Q. 51 *What is Imperfect Competition? Contrast it with Perfect Competition*

When we talk of competition, whether perfect or imperfect we think of a number of people engaged in doing the same thing, or in other words, having the same wants to satisfy. Thus there may be a number of sellers, or manufacturers, or a number of buyers of commodities or services between whom there may exist perfect or imperfect competition. They are said to compete when each one of them endeavours to maximise his own gain. If we take the case of sellers of a commodity, they are said to compete when each of them attempts to sell his goods so as to maximise his own net income from the sale of goods. In more concrete terms this competition between them can be expressed as consisting in the attempt to take away the customers of other sellers. If a seller can, by some device, deprive the other sellers of their customers and himself take away these customers he is said to compete with them. The way in which he can take away their customers is by charging a smaller price than they are charging. He can offer other inducements instead of offering his goods for a lower price. But these other inducements can be viewed as a kind of concession in the selling price.

This competition between sellers (and that would be equally true of buyers) may be *perfect* or *imperfect*. It is said to be perfect when a seller can draw to himself *all* the customers of *all* other producers by reducing his selling price slightly below that of others. If he cannot draw to himself all other customers but only some of them, competition is said to be *imperfect*.

Thus the perfection or imperfection of competition is to be judged by the extent to which one can deprive the others of their customers by offering an inducement of a lower price. If, however, it is not possible for any of the sellers to deprive other sellers of their customers they are said to be monopolists. In the case of monopoly, therefore, competition is altogether absent. Diagrammatically perfect competition can be represented by a horizontal demand curve which shows that by the slightest reduction of price the demand increases infinitely. Imperfect competition would be represented by a sloping curve which shows that the demand increases by the fall of price but only to a limited extent. In the case of monopoly also the demand curve is sloping down but is steeper than in the former case showing that one can sell more by reducing the price but only to a small extent. For, one can sell to new customers only, as in monopoly it is not possible to deprive others of their customers.

Q 52. Enumerate the causes of imperfection of competition. In view of these causes consider whether in the real world prices are governed by forces of perfect or imperfect competition

We have already seen how in the case of imperfect competition one cannot draw to one's self all the customers of one's rivals. The causes of imperfect competition are, therefore, the causes which make customers stick to their respective sellers. Now, buyers stick to their sellers either because they do not know that some other sellers are offering the same goods at lower prices or because they do not care to buy in the cheapest market. The first cause is, therefore, the ignorance of the buyers while the second is the habit of buying from one particular seller. We might call this cause the *inertia* of buyers.

Besides ignorance and *inertia* of the buyers there is one other cause of imperfect competition. The cost of shifting from one seller to another also prevents buyers from taking advantage of lower prices charged by other sellers. The cost of shifting may be material or psychological. The psychological cause partly consists in the *inertia* of buyers which has been considered already and partly in the dislike of having to deal with a new man whom one does not know so well. But the material cost of shifting is often more important than the psychological. The material cost consists in the cost of transport of goods. Purchasing goods from a new seller who is farther away from the old requires a heavier cost of transporting goods. For this reason a seller who is close to the buyers can with impunity charge a slightly higher price than the one that a more distant seller is charging.

Ignorance of buyers, their *inertia* and the cost of shifting from one seller to another are, therefore, the causes of imperfection of competition. In the real world buyers are often ignorant, they are inert, they stick to a seller often because they are in the habit of dealing with a certain firm, and there is the cost of transporting goods. Increasing efficiency of means of communication and transportation is however weakening the first and the third causes. Today people get the information of the ruling prices in different markets more easily and the cost of movement is much lower than before. Yet, these two causes still remain, and, these, along with the second, which the modern developments in the world have done, perhaps nothing to weaken, are today responsible for the imperfection of competition. In the real world, therefore, prices are governed in almost all cases by forces of imperfect competition.

Q 53 *How is the price of a commodity determined in the case of imperfect competition? contrast it with the manner in which it is determined in the case of perfect competition.*

There is no difference in the fundamental principle which governs the determination of price in the case of perfect and imperfect competition. For, value is value whether there is or is not perfect competition. However, there are differences in the matter of details. The significant difference is that whereas in the case of perfect competition the demand curve is, as we have seen, horizontal, in the case of imperfect competition it is sloping downwards. Value is determined by supply and demand. It is pertinent to note, therefore, that there is such a difference in the shape of the demand curve in the two cases. The difference in the character of the demand curve makes all the difference in the price that a seller can charge.

Since, in the case of competition the demand curve is horizontal, the seller has a fixed price to reckon with. He must either charge that price or sell nothing. All that he can, therefore, do is to sell an amount that maximises his net income. And the net income can be maximised by producing and selling till the marginal cost equals the price. Selling more than that amount would entail loss and selling less would leave some margin for further profit. Hence, in the case of competition the seller adjusts his supply so as to make his marginal cost equal to the price ruling in the market—the price given by the horizontal demand curve.

In the case of imperfect competition the demand curve is sloping downwards. That means that the price is not fixed, it varies with the amount that he offers for sale. If he sells more the price falls and if he sells less the price rises. He produces and sells that amount which maximises his net income. And his net income is maximum when the marginal cost is just equal to the addition made to his income by the last unit sold. In other words, the net income is maximum when marginal cost is equal to marginal revenue i.e. marginal income. If he sells less the marginal

cost is less than marginal revenue and so there is room for increasing profit and if he sells more the marginal cost is greater than the marginal revenue so that he incurs a loss on the marginal units produced. We can explain this equality by taking figures of price and cost

Units sold	Price	Marginal Revenue	Marginal Cost	Total Income	Total Cost	Net Income
1	10/-/-	10/-/-	6/-/-	10/-/-	6/-/-	4/-/-
2	9/8/-	9/-/-	7/-/-	19/-/-	13/-/-	6/-/-
3	9/-/-	<u>8/-/-</u>	<u>8/-/-</u>	27/-/-	21/-/-	6/-/-
4	8/8/-	7/-/-	9/-/-	34/-/-	30/-/-	4/-/-
5	8/-/-	6/-/-	10/-/-	40/-/-	40/-/-	0/-/-
6	7/8/-	5/-/-	11/-/-	45/-/-	51/-/-	6/-/-

The table is constructed from the figures of price, amount sold and the marginal cost. All other figures are calculated from these three figures. Price multiplied by the amount sold gives total income. The difference between consecutive figures of total income gives marginal revenue. The difference between total cost and total income gives the net income.

We see from the table that the most profitable amount to produce is three units, for then the net income is maximum. And it is for this very output that the marginal cost equals the marginal revenue. It will however be noticed that the net income is maximum also for two units of output. That is so because our units are very large. If we could choose conveniently small units we would find the net income attaining the maximum at only one point. In other words, when the units are small the two units which give equal net incomes would coincide. In this table we have increased the output by cent percent,

by fifty percent, and so on. These are too big increases to yield accurate results, or at any rate, to illustrate properly the law that governs value. It can be seen however that the output, and so the price, is determined by the equality of marginal cost and marginal revenue.

Q 54 Can the theory of value be so stated as to make it applicable to the three cases of Perfect Competition, Imperfect Competition and Monopoly at once?

We have seen in the foregoing pages how value is determined in the case of each of the three types of supply. In the case of perfect competition the price equals marginal cost (in equilibrium it also equals the average cost); in the case of imperfect competition the marginal revenue equals the marginal cost. In the case of monopoly the principle of maximum monopoly revenue governs the price. But in all these three cases, the forces working behind price are those of supply and demand. Given the two curves of supply and demand, or what comes to the same thing, given the figures of marginal cost and the demand prices for the various amounts offered for sale, we can find out the price at which the products would be sold, whether there is perfect competition, imperfect competition or monopoly. No other data are required for the determination of the price. We, therefore, say that the most general statement with regard to price is that in all cases it is determined by the forces of supply and demand. But though that statement is correct it is too vague. It is possible to word the statement in more particular terms.

We have just seen how in the case of imperfect competition the price is determined at the point where marginal revenue equals marginal cost. Now, that principle applies also to monopoly for the reason that in the case of monopoly also the demand curve, as already explained, is sloping downwards. And the object of a producer whether he is a

monopolist or not is to secure maximum net income. Hence, the case considered in our previous answer could as well be taken to be one of monopoly and the conclusion drawn that in the case of monopoly the price is determined by the equality of marginal revenue and marginal cost stands correct.

In the case of perfect competition, as we have seen earlier in the book, price equals marginal cost. We have further explained that the demand curve is horizontal. When the demand curve is horizontal, it means that the price is constant. If we were, therefore, to keep the price constant in the second column of the table in the last question, constant at say 9 (or at any other figure making profit at all possible) it would become a case of perfect competition. The total income in the case would go on increasing always by 9. That is, the figure of marginal revenue, which is the difference between total incomes would also be constant and equal to 9. Hence, when marginal cost equals marginal revenue it also equals price. Thus, the object of maximising net income is secured in the case of perfect competition by equating marginal cost with price—the price and marginal revenue being equal.

We find, therefore, that even in the case of perfect competition price is determined by the equality of marginal cost and marginal revenue. This, therefore, is the principle that is applicable to the three cases of perfect competition, imperfect competition and monopoly at once.

Q 55 Can individual firms be of optimum size in the case of imperfect competition?

A firm that is producing its output at an average cost that is the minimum possible is said to be of optimum size. As the firm expands from a small size to a larger one it is able to take advantage of all the economies of large scale production. The law of increasing returns or decreasing

costs, therefore, operates. The average cost of production falls. After a certain stage in the expansion of the firm is reached the law of diminishing returns begins to operate. This is the point where all the economies of large scale production are fully exploited. A further increase in the size results in higher average cost. The cause of such rise in the average cost, is, the impossibility of increasing all the factors of production in the same proportion. A firm makes an endeavour to grow upto this optimum size so that its average cost may be the lowest.

But this is to the advantage of a firm only when there is perfect competition. For, when there is perfect competition the price of the goods, as we have seen, is fixed and is not altered by the firm's decision to produce more or less. It is, therefore to the advantage of a firm to produce that quantity for which its average cost is the lowest. The profit (if there be any) is then maximum.

But when the competition is imperfect the price, as we have already seen, varies with the output of each individual firm. To produce more is, therefore, to reduce the price at which one can dispose of one's goods. Production upto to the optimum capacity therefore implies a reduction of price. By producing less than the optimum a firm can charge a higher price. By producing more than the optimum one gains in as much as there is more to sell but one loses in as much as the price falls. Whether one gains on the whole or loses depends on the rates at which the output increases and the difference between the price and cost falls.

When one produces more than the optimum the price falls, the cost rises but there is more to sell. When one produces less than the optimum, there is less to sell but the price is higher and so also is the cost. It can be seen clearly with the help of a diagram that it is most profitable to sell a quantity smaller than the optimum when the industry is in equilibrium.

Diagrammatically, as we have seen, imperfect competition is represented by a falling demand curve. Likewise, the equilibrium of the industry is represented by a situation in which the demand curve is tangential to the cost curve, i.e., it just touches the cost curve, so that there is no possibility of any profit. If there are profits, new firms enter the industry, if there are losses, some firms leave the industry. Hence, when the industry is in equilibrium it shows that there are neither profits nor losses, that is, it is a case in which the demand curve just touches the cost curve. A sloping demand curve can touch the cost curve only to the left of the lowest point. It cannot touch it to the right. That shows that when the industry is in equilibrium the output of a firm is less than the optimum. Hence we can conclude that in the case of imperfect competition the firms are of less than the optimum size when the industry is in equilibrium.
